

2006

ANNUAL REPORT



Marine Institute
Foras na Mara

SERVING SCIENCE AND THE SEA

To the Minister for Communications, Marine and Natural Resources

In accordance with the requirements of the Marine Institute Act, 1991, I have the honour of presenting the Annual Report and Statement of Accounts of the Marine Institute for the year ended 31st December 2006.

Kevin Bonner, Chairman

The Marine Institute is the national agency which has the following general functions:

‘to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Marine Institute will promote economic development and create employment and protect the marine environment.’

Marine Institute Act 1991

OUR VISION

A thriving maritime economy in harmony with the ecosystem and supported by the excellence of our services

CONTENTS

Introduction and Organisation Structure	04
Board Members	05
Chairman's Statement	06
Chief Executive's Report	07
Corporate Services	08
Irish Maritime Development Office (IMDO)	10
Marine Environment & Food Safety Services	12
Fisheries Science Services	14
Aquaculture & Catchment Management Services	16
Ocean Science Services	18
Strategic Planning & Development Services	20
General Administration	22
Appendices	
Appendix 1 – Irish Participation in EU RTD Projects Under the FP6 INTERREG III and AquaReg Programmes	23
Appendix 2 – NDP Marine RTDI Measure 2006	24
Appendix 3 – Marine Institute Publications	26
Appendix 4 – Publications	27
Appendix 5 – Upstream Census Data for the Burrishoole System, 2006	30
Appendix 6 – Research Vessel Programme 2006	31
Appendix 7 – Foreign Marine Scientific Research (MSR) Activities in Irish Waters in 2006	33
Appendix 8 – Conference / Workshop Sponsorship in 2006	34
Appendix 9 – Scientific Working Groups Served by Marine Institute Personnel	35
Glossary of Abbreviations	40

INTRODUCTION AND ORGANISATION STRUCTURE

INTRODUCTION

The Marine Institute is the national agency for marine research, technology, development & innovation [RTDI]. We seek to assess and realise the economic potential of Ireland's vast marine resource; promote sustainable development of marine industry through strategic funding programmes and essential scientific services; and safeguard Ireland's natural marine resource through research and environmental monitoring.

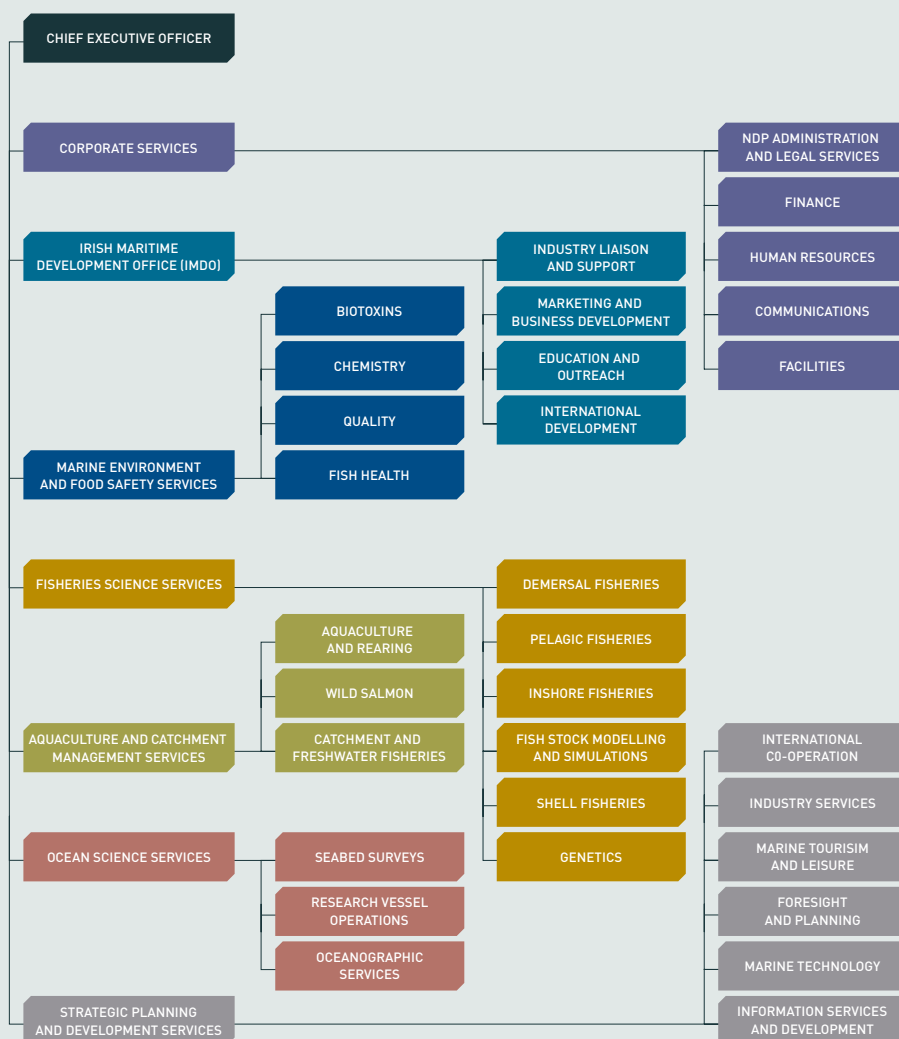
Ireland has a marine resource of 220 million acres under the sea, which is over ten times its land area and largely undiscovered. The Marine Institute is the State agency responsible for promoting the sustainable development of this vast marine resource through research, and providing management advice to industry, the Government and EU. The Institute provides essential marine research services including:

- National research and development funding programmes
- Fish stock assessment
- Fish health services
- Marine food safety monitoring
- Environmental monitoring
- Research vessel operations
- Seabed mapping
- Data management

To provide these services to the highest degree of excellence, and to plan for future developments, the Institute is structured into seven Service Teams, as outlined opposite.

This report highlights the key deliverables and progress made towards our vision during 2006.

ORGANOGRAM



BOARD MEMBERS

1. Mr. Kevin Bonner (Chairman) (2005 – 2008)

Kevin Bonner was educated at University College Dublin (BA), Trinity College Dublin (MSc Econ) and the King's Inns (Dip Legal Studies) and has spent most of his career in the Irish civil service, which he joined in 1967. He retired in 1997 as Secretary General of the Department of Enterprise, Trade and Employment, a Department with a budget of €1.5 billion, and 1000 policy-oriented staff employed directly and 4000 indirectly in the Department's agencies – IDA, Enterprise Ireland, Forfas, FAS (Training Agency), Competition Authority, Patents Office, Labour Court, Labour Relations Commission, Health and Safety Authority, etc. Mr. Bonner has been a member of National Economic and Social Council and the Council of the Economic and Social Research Institute.

2. Mr. Fergus Cahill (1996 – 2006)

A former Naval Officer and Chief Executive of the Irish National Petroleum Corporation (INPC), Mr. Cahill is currently Chairman of the Irish Offshore Operators' Association and Marine Technical Development Services Ltd.

3. Ms. Mary Dooley (2002-2007)

A Fellow of the Institute of Chartered Accountants in Ireland and a graduate of Trinity College, Dublin, Ms. Dooley is a Member of the Board of a small number of commercial, cultural and charitable organisations. She has held senior management positions in the entertainment, pharmaceutical, health and educational industries in Ireland, working with Ryan Hotels Plc., Warner Communications Inc., Bristol Myers Inc., St. James Hospital. She is Bursar of National University of Ireland, Galway.

4. Mr. Richie Flynn (2001 – 2006)

Mr. Flynn is currently the Executive Secretary of the IFA's Fish Farming Section, incorporating the Irish Salmon Growers' Association and the Irish Shellfish Association. He holds the position of Chairman of the EU Commission's Aquaculture Advisory Committee and of the Environment Committee of the Federation of European Aquaculture Producers (FEAP).

5. Captain Dave Hopkins FNI, IIMM (2000 – 2006)

A master mariner since 1976, Capt. Hopkins is Director of the marine services group Irish Mainport Holdings, President of the Irish Chamber of Shipping and Vice President of the International Federation of Shipmasters. He is also a member of the board of Advisory Board of the Irish Maritime Development Office and a council member of the Emergency Rescue and Recovery Vessel Association.

6. Mr. Joey Murrin (1998-2008)

Formerly Chairman and Director of An Bord Iascaigh Mhara and CEO of the Killybegs Fishermens' Organisation, Mr. Murrin is currently Chairman of the National Salmon Commission.

7. Ms Terry Fleming (2004-2009)

A Tax and Financial consultant, Terry Fleming has over 20 years experience as a Corporate Tax Advisor with PricewaterhouseCoopers. She has worked on a wide variety of tax consulting, due diligence and corporate restructuring projects for a portfolio of major Irish and multinational clients, both publicly quoted and privately owned. Educated at UCD and DCU, she is a member of the Irish Taxation Institute. She is currently working as an Independent Consultant.

8. Sean O'Donoghue (2001 – 2006)

CEO of Killybegs Fishermen's Organisation, Mr O'Donoghue has a long established career in fisheries management working in the Department of Marine and An Bord Iascaigh Mhara (BIM) for twenty years prior to his present position. He has played a key role in a number of important fisheries issues such as fleet renewal and modernisation, TACs and quotas negotiations and the review of Common Fisheries Policy. He is chairman of the North West Pelagic Management Committee and represents the European Association of Producer Organisations on working group IV of the EU Commissions' Advisory Committee on Fisheries and Aquaculture.

9. Dairine MacFadden (2005 – 2010)

Dairine MacFadden is a Solicitor originally from Donegal but now based in Dublin. She graduated from UCD with a law degree (B.C.L.) and returned there later to do a Diploma in European Law, followed by a masters degree in Law, by thesis on the Common Fisheries Policy. She has worked as in house Solicitor for RTÉ and also for TG4 and has represented commercial fishermen throughout Ireland while in general practice. She is currently working in the Law Society of Ireland.



CHAIRMAN'S STATEMENT

2006 became a landmark year for the Marine Institute, with the occupation of our new headquarters and laboratory facility at Oranmore, Co. Galway in March. This 11,000 square metre facility, which has since won three national awards (two architectural and one landscaping), comprises 54 laboratories, an auditorium capable of seating 147 people and a unique crescent-shaped office facility overlooking Galway Bay. This stunning building was designed by an award-winning team from the Office of Public Works, led by Ciaran O'Connor. It was officially opened by An Taoiseach, Mr. Bertie Ahern T.D. on the 9th June which, appropriately enough, has long since been designated internationally as World Oceans Day. I would like to echo the Taoiseach's acknowledgement of the tremendous commitment of the staff, management and Board of the Marine Institute without which this major relocation process could not have been so successfully achieved.

2006 also saw work drawing to a close on the final preparation of *Sea Change* – A Marine Knowledge, Research and Innovation Strategy for Ireland 2007 – 2013. Work on *Sea Change* began in 2004 with a wide-ranging consultation process facilitated by the Marine Institute, the commissioning of a number of experts and a review of the previous 1998 strategy. It was finally distilled into two documents – one describing the Foresight Process and the other containing the strategy itself, along with visions, objective and outputs for each of the five main programmes. *Sea Change* will be launched early in 2007. I would like to congratulate all those involved in this far-reaching process, both inside and outside the Institute, and look forward to putting their collective wisdom into practice over the years ahead.

An important milestone in the adoption by Government of *Sea Change* was achieved with the inclusion of the key elements of *Sea Change* in the Government's Strategy for Science Technology & Innovation (SSTI) which was launched by the Taoiseach in June 2006.

The Marine Institute also played an important role in supporting the Irish Government in its successful efforts to secure a strong horizontal component for marine R&D in the new EU 7th Framework Programme and we anticipate this will be a major benefit to the marine sector during the lifetime of the *Sea Change* Strategy.

At sea, the inshore phase of the Irish National Seabed Survey, INFOMAR (INtegrated Mapping

For the Sustainable Development of Ireland's MARine Resources) got underway with our partners the Geological Survey of Ireland. This survey, which brings the detailed mapping of Ireland's 220 million acre ocean resource into the commercially important shallow waters around our coast, will have important implications not only for navigation, but also for the vital industries that work there. Further afield, the ocean-going capabilities of the RV *Celtic Explorer* allowed her to take part in work for the United Nations, helping to develop sustainable fisheries along ecosystem-based management lines in the coastal marine areas of Antigua, Barbuda, Barbados, Dominica, Grenada, St. Kitts, St. Nevis, St. Lucia, St. Vincent, the Grenadines, Trinidad and Tobago. This research work will transfer scientific expertise to the nations in the area to help them develop sustainable fishing industries of their own. It was carried out under the United Nation's Food & Agricultural Organisation (FAO).

Closer to home, the RV *Celtic Explorer* also supplied the working platform for the annual groundfish survey, conducted by the Institute's Fisheries Science Services Team to assess the levels of important commercial fish stocks around the Irish coast. This information, along with data gathered by the team's scientists and Fisheries Assessment Technicians around the ports, was compiled into the annual *Stock Book*, a vital document used by the Minister and his team to negotiate quotas for the Irish fishing industry in Brussels in December. This document was also made available to all interested parties on CD and through the Marine Institute's website.

To support Ireland's reputation for safe and high-quality seafood, the Marine Institute's Marine Food and Environmental Services Team provided a broad spectrum of monitoring support and advice across both the shellfish and finfish sectors. A variety of test methods, covering the full range of monitoring in shellfish safety, residues, fish health and marine environmental chemistry have been accredited in accordance with ISO standards by the Irish National Accreditation Board and a number of ambitious research projects were undertaken on harmful algal blooms, the isolation of the natural marine toxins azaspiracids and work on reducing risk in shellfish harvesting areas. The Fish Health Unit also inspected all freshwater and marine fish farm sites during the year to test for the presence of diseases listed under EU Directive 91/67/EEC.

The Institute, through its Aquaculture and Catchment Management Services (ACMS) team also provided scientific support for the Government decision to move from mixed stock salmon fisheries to single stock salmon fisheries during 2006. This new management regime requires a completely new assessment method based on traps, counters and rod catches from each river, a method that ACMS was instrumental in developing during the year with advice from colleagues in Canada and ICES, the International Council for the Exploration of the Seas.

In the domestic ship owning sector, the Irish Maritime Development Office (IMDO) estimate that the number of ships owned, managed and operated by Irish based companies, operating in global markets has increased by 240% since 2003, which can partly be attributed to policy supported and developed by the Marine Institute.

The Institute also continued its mission "to address the national blind spot regarding our marine resources" in 2006 with a public open day and "Pirate Party" at the Oranmore facility in June. In the Galway area, an imaginative primary schools outreach programme was launched in ten schools in the area, facilitated by the Institute's Communications Section and supported by Galway Atlantaquaria, the Galway Education Centre, Galway/Mayo Institute of Technology and the Connemara Environmental and Education Centre.

All of these activities, our publications and reports are available to view on the Institute website at www.marine.ie and I recommend anyone with an interest in the sea to pay this site a visit.

As always, the work of the Marine Institute was underpinned by a strong focus on our corporate governance. I am indebted to the Board Internal Audit Committee, who ensured that an effective system of internal financial control was maintained that supported the achievement of Marine Institute policies, aims and objectives during the year.



Kevin Bonner
Chairman : Marine Institute



CHIEF EXECUTIVE'S REPORT

2006 saw the Marine Institute continuing to move forward towards the Government's objective of establishing a world-class performer in marine research. The first of these was the movement of staff to the new headquarters and laboratory at Rinville, Oranmore, Co. Galway on time in March. Through a number of public events, conferences and seminars, as well as through the capabilities of the laboratory, data processing and other facilities, the Oranmore headquarters is now well on the way to recognition as the centrepiece of Ireland's "Atlantic Gateway", in conjunction with other marine research and educational establishments in the Galway area.

The adoption by Government within the Strategy for Science Technology & Innovation 2006-2013, published in June 2006, of the key elements of *Sea Change*, A Marine Knowledge, Research & Innovation Strategy for Ireland (2007-2013) was a major achievement for 2006. The text for the two volumes of *Sea Change* was completed in 2006 and both documents are due for publication and launch early in 2007.

Together with its partner, the Geological Survey of Ireland, the Institute forged ahead with INFOMAR, the second and inshore phase of the Irish National Seabed Survey. This survey of Ireland's valuable inshore waters began in 2006 with a number of bays on Ireland's west coast and will continue until the entire inshore territory has been accurately mapped.

In addition to these major developments, I am pleased to report strong performance across all areas in the Marine Institute, as well as the following highlights:

On the international stage in particular, the Marine Institute has been successful in supporting the Irish Government in securing marine research as a cross-cutting theme in the EU Framework Programme 7. This is a vital step forward, not only for Irish marine interests, but also those across Europe. In this context, the Institute also began preparations to co-ordinate the Irish national response to the EU Green Paper – Towards a Future Maritime Policy for the Union – on behalf of the Department of Communications, Marine and Natural Resources. The full consultation process will commence early in 2007.

At home, the research vessel *Celtic Explorer* continued to set scientific precedents by being the first Irish research vessel to participate in an

overseas aid project under the auspices of the United Nations. Both the RV *Celtic Explorer* and the RV *Celtic Voyager* continued to operate at peak productivity levels, on national programmes and on contract for other marine research missions. Such work would include the various fisheries surveys carried out during the year as part of the information gathering exercise for the annual Stock Book of fisheries advice used to brief the Minister of Communications, Marine and Natural Resources and his team during the annual quota negotiations in Brussels in December.

Scientists from the Marine Institute also advised the Minister, through the National Salmon Commission and the Independent Salmon Group, in advance of the government decision to move from mixed salmon stock fisheries to single stock fisheries on stocks meeting conservation limits. This decision has been described as the single most fundamental and important change to salmon management in Ireland's history.

Work continues in support of the seafood industry through the monitoring and quality assurance provided by the Institute through test methods covering the full range of monitoring in shellfish safety, residues, fish health and marine environmental chemistry, all of which are now accredited in accordance with ISO 17025 standards by the Irish National Accreditation Board.

We have continued our efforts to strengthen the quality and impact of our core services together with a strong emphasis on the development of E-services delivery mechanisms and I would draw your attention to the details of these efforts in the accompanying reports from our various service teams. The appendices of scientific and technical publications, meetings and conferences supported and scientific working groups chaired all attest to the success achieved by our staff over the year.

I would like to emphasise my appreciation for their continued dedication and professionalism.



Peter Heffernan
Chief Executive



CORPORATE SERVICES

DIRECTOR'S STATEMENT

2006 saw the relocation of approximately 140 staff to the Marine Institute's headquarters from the Galway Technology Park to a purpose built facility at Rinville, Oranmore. This move was managed and carried out by Corporate Services in a timely and efficient manner during March, followed by extensive re-orientation and training of staff within the building. During this time Corporate Services fulfilled a vital role in ensuring the appropriate systems and expertise were put in place to support the move, while ensuring that essential services were maintained and the highest levels of corporate governance adhered to. Key developments in 2006 included:

- A third version of our Service Level Agreement was agreed and implemented with Department of Communications, Marine and Natural Resources (CMNR).
- Efficiencies continued to be achieved through the award of key contracts through a tender process including service contracts for the majority of plant on site at Oranmore.
- Our commitment to best practice corporate governance within the Institute remains stronger than ever, with nine separate internal audits in 2006 all showing that the financial and procedural systems in place are excellent and working well.
- Timely preparation of reports to the Department of Communications, Marine and Natural Resources, including statutory financial reporting and the updating of a Fixed Asset Register.
- A fresh focus on Health and Safety, as appropriate to the move, including revised organisation-wide policies and procedures for all facilities throughout the country.
- Increased emphasis on Learning and Development, including production of a Management Development Programme and associated Manager's Handbook.
- Continued evolution of the Performance Management Development System (PMDS) in support of the Institute's Strategic Corporate Goals.
- The official opening of the Oranmore facility on World Ocean Day, June 9th, was celebrated by a visit from An Taoiseach, Mr. Bertie Ahern T.D. and event managed to include media briefings, facility tours and a VIP reception. This was followed on June 11th by a public open day and "Pirate Party" for the local communities of Oranmore and Galway featuring not only Marine Institute exhibition stands and demonstrations, but also those of a wide variety of local and



COMMUNICATIONS

The communications team continued its active campaign of public information and outreach during 2006, culminating in a co-ordinated information event around the opening of the Oranmore facility in June. This resulted in extensive media coverage of the opening ceremony on the 9th, including a dedicated thirty-minute edition of "Nationwide", the hosting of a European Science Foundation Marine Board Communications Group meeting at Oranmore on the 10th and a public "Pirate Party" to celebrate both the opening and World Ocean Day on the 11th June. This last event featured educational displays by other maritime organisations in Galway ranging from state and regional bodies, third level education, to wildlife and conservation groups, community groups and marine leisure interests, and served to cement positive relations between the Institute and the local community.

Exhibition stands were mounted at the BT Young Scientist Exhibition 2006, the Irish Skipper "Inshore Ireland" trade exhibition, the Killybegs Fisheries Exhibition, and the Galway Science and Technology Festival.

The "Galway Explorers" marine educational programme for primary schools, facilitated by the Marine Institute in partnership with Galway Education Centre, Galway Atlantaquaria, Galway-Mayo Institute of Technology and the Connemara Environmental and Education Centre, was launched at the Atlantaquaria in November. This integrated programme, aimed at ten schools in the Galway area, consists of school visits, a "treasure chest" of educational material, visits to the research vessels and the Atlantaquaria.

The newly redesigned website (www.marine.ie) was launched with a variety of new features and capabilities.

national marine interest groups as part of the Institute's ongoing outreach programme.

- The "Galway Explorers" primary education programme was developed during the year to "bring the sea to the classroom" in ten local schools, facilitated by the Institute but also supported actively by a number of other organisations.
- The Marine Institute website www.marine.ie was completely redesigned during the year and launched in June with a host of new features.

Chepbe

Ms. Caroline Hepburn
Director : Corporate Services



HUMAN RESOURCES

The Human Resources Team were central in the Marine Institute relocation programme, helping 140 members of staff move into and become familiar with the new Marine Institute facility in Oranmore in March 2006. With the move came a fresh focus on Health and Safety, setting up revised Marine Institute wide policies and procedures for safe working practices in all our facilities. There was a successful Health and Safety week promoting the partnership approach to managing this area in the Institute and this was reflected in the fact that there were no major accidents or incidents to report in 2006.

A collaborative and focused approach to Learning and Development saw the design of a Management Development Programme and supporting Managers Handbook, which synchronised with the evolving Performance Management Development System to support the Marine Institute Strategic Corporate Goals. The HR team continued to provide a best practice, customer focused support service to the Marine Institute.

ACCOUNTS

A full financial report is contained in the second part of this report.

FACILITIES

2006 saw the successful relocation to the state of the art facility in Rinville, Oranmore. Contracts were operational and overseen throughout all areas of facilities management, in particular cleaning, catering and security.

Maintenance service contracts were put in place for the majority of the plant on site, extensive Mechanical & Electrical equipment require ongoing planned preventative maintenance schedules.

Housekeeping policies and procedures were developed and the settling in period allowed for modifications to be made with internal and external services operating in an efficient and cohesive manner with customer services at the forefront.

Snagging of the new facility continued throughout the year in partnership with OPW and a Facilities Service Desk proving an excellent mechanism for reporting and resolving facilities issues.

The relocation resulted in the successful closure of Galway Technology Park and Technical Support Base. Abbotstown remains operational for a minority of staff, functioning as efficiently as possible in financial and energy terms.

ACCESSIBILITY

The Institute was fully compliant with the Disability Act 2005 during the year.

THE ROLE OF CORPORATE SERVICES IS TO PROVIDE A QUALITY SUPPORT SERVICE THAT PROMOTES, ADVISES, COMMUNICATES AND ASSISTS WORK ACROSS THE ORGANISATION IN A FRIENDLY AND EFFICIENT MANNER.

09



FINANCE

The finance department continued to ensure that strong corporate governance underpinned growth in the organisation with a strong focus on budgetary planning for procurement and capital expenditure, regular budgetary reviews and control. Payroll, payment of suppliers, assistance with tendering and adherence to public procurement procedures as well as timely preparation of reports for the Department of Communications, Marine and Natural Resources, together with statutory reporting remain the central functions of the finance department. The updating of a Fixed Asset register for the Marine Institute also commenced in 2006.



IRISH MARITIME DEVELOPMENT OFFICE (IMDO)

DIRECTOR'S STATEMENT

The Irish shipping services sector continued to make robust progress in 2006, buoyed by another year of strong economic growth. The IMDO estimate that in 2006 the shipping services sector employed about 8,300 people, in 315 companies with a combined annual turnover of €1,690 billion. The IMDO continued to play an active role in promoting, developing and supporting companies within the sector.

Economists are forecasting that final headline GDP & GNP for 2006 will be above initial forecast growth and closer to 6-6.2%. This continued growth and optimism is reflected in another anticipated record year for the Irish ports & shipping sector, in particular at the main strategic liner, container and bulk ports.

The key container sectors operating in the Irish market have seen a significant number of developments during 2006, including major merger and acquisition activity, new capacity investment in both vessel and routes and further infrastructure investments by private and public institutions.

A large number of Irish ports are progressing with their investment and capacity expansion plans to meet the continued growth in local and national demand, particularly in the unitized segment. The IMDO worked as part of the Department of Transport expert team that undertook the review of future seaport capacity in 2006.

The passenger ferry market continued to lose market share to the low cost airlines. There is however, some optimism that the decline might soften, partly attributed to aggressive pricing strategies and intensive promotion by the major ferry operators, but also indirectly as a reaction to delays in passenger check-in at airports and ongoing terrorist threats to airline security.

The IMDO estimate that the number of ships (above 500gt) owned, managed, operated, long term chartered and controlled by Irish based companies, operating in domestic and global markets has increased by about 240% since 2003. While the level of asset based activity has increased, Irish shipping companies continue

to face challenges in highly competitive global sectors competing against some owners and operators located in offshore jurisdictions. The number of Irish registered ships has fallen over this period. The IMDO will shortly publish a report on the state of Irish seafaring and future options for its sustainable development.

Elsewhere, other emerging international traded services sectors such as maritime banking and finance continued to grow and increase their share of global portfolio activity being carried out from Ireland.

Demand for Irish Officers and cadets remained buoyant in 2006. The Office continued to see encouraging returns on its investment in the area of maritime education development with strong interest in training and placement of Irish seafarer cadets. In May the Office launched its "Follow the Fleet" web based portal which it plans to develop and expand in 2006.

- The IMDO also supported the marketing of Irish industry maritime services at Posidonia, Greece in June which included the hosting of an Irish evening by the Irish Ambassador to Greece on board the *LE Eithne* for Irish and International shipping companies.

EDUCATION

- Our ISEAS seafarer cadet training and upskilling program enjoyed another strong year. The IMDO continues to work closely with the National Maritime College in Cork to undertake these programs. The ISEAS fund administered by the IMDO trained and supported 70 trainee cadets – (100% of cadets funded for sea time) while our support funding provided for an existing 20 Irish merchant seafarers upskilling in the areas of Chief Mate / Masters / C. Eng Engineers / Second Engineers and Officer of the Watch training (Long term ratings).
- The "Follow the Fleet" web portal was launched in May aimed at raising interest and awareness of the Irish commercial shipping sector amongst pupils of primary schools in Ireland.



The key developments in 2006 in which the IMDO played a leading or supporting role included:

RESEARCH

- In September the IMDO commenced a strategic review of Irish Maritime Transport Policy, hosting extensive consultation with the Irish Maritime cluster. The results of this process will be submitted in a memo to the Department of Transport in 1st quarter 2007.
- In December the IMDO completed an assessment of the Irish seafaring sector, the first time that such a detailed quantitative and qualitative assessment of the skills base had been undertaken. The results of this process are expected to be published in early 2007.
- In April, the IMDO published its third annual Irish Maritime Transport Economist.
- The IMDO completed its 8th shipping review which proved to be one of the most visited segments of the IMDO's web portal. A printed version of the entire series is planned for 2007 with seven new shipping reviews planned this year.
- Excess of 763,000 hits on IMDO web portal, a 13% increase on 2005 and the fifth consecutive annual increase of web traffic.

Overall in 2006, the sector continued to perform well and deliver competitive solutions to Irish industry in an increasingly fast changing globalized world economy. The sector's ability to plan, innovate and invest ahead of the curve and remain competitive is a highly important element for our continued future economic growth and sustainability.

Finally in December the Advisory Group to the Office, chaired by Mr. Padraic White completed its current term. I would like to thank the Chairman and the members of the group for the magnificent contribution to the IMDO's strategic development program.



Mr. Glen Murphy
Director: Irish Maritime
Development Office (IMDO)



BUSINESS DEVELOPMENT

- The IMDO worked closely with the development and establishment of new liner shipping services in 2006 in both the load on/load off (lo/lo) and roll on/roll off (ro/ro) sectors. A noticeable feature in 2006 was the growth in capacity and competition in the ro/ro market segment. The lo/lo market was equally active in 2006. We estimate there were 30 changes to key routes in 2006, the majority (75%) of which were positive, including additional capacity, new routes, and more frequency on key trade corridors.
- By the end of 2006, seven of the top ten leading container lines had dedicated stand-alone Irish based operations, with a further investment expected in 2007.
- We estimate that 80% of the liner services operating to and from Ireland are controlled or owned by foreign or non Irish corporations, many of whom have now established stand-alone Irish based subsidiaries.
- The IMDO supported two major overseas marketing initiatives by Irish companies and shipping service providers in 2007. In March it sponsored part of the overseas industry cruise sector trade mission to the US in March which was lead by Minister Pat the Cope Gallagher. The Cruise sector recorded an estimated 25% growth in passenger numbers in Ireland in 2006.

THE IRISH MARITIME DEVELOPMENT OFFICE HAS A STATUTORY MANDATE TO PROMOTE AND DEVELOP GROWTH IN THE IRISH SHIPPING SECTOR AND TO ATTRACT TO IRELAND ADDITIONAL MARINE RELATED OPERATIONS, ALONG WITH KEY PLAYERS IN INTERNATIONAL SHIPPING AND ANCILLARY SERVICES.



MARINE ENVIRONMENT AND FOOD SAFETY SERVICES

DIRECTOR'S STATEMENT

The 60 scientists of the Institute's MEFS team provided scientific services on food safety and the marine environment to the Irish seafood sector and the State agencies such as the Department of Communications, Marine & Natural Resources (DCMNR) and the Food Safety Authority of Ireland (FSAI), as well as research and monitoring programmes in the areas of fish health and the marine environment. This scientific work forms the platform for the Institute's advice to government agencies and the EU on seafood safety, marine environment, marine licensing and fish health.

The Marine Environment team is committed to providing a range of high quality services to our clients. A total of 25 test methods, covering the full range of monitoring in Shellfish Safety, Residues, Fish Health and Marine Environment Chemistry have been accredited in accordance with ISO 17025 by the Irish National Accreditation Board (INAB).

The MEFS team carried out an ambitious programme of monitoring and applied projects. Those which were completed in 2006 included;

the Biological Oceanography of Harmful Algal Blooms (BOHAB), the Isolation and purification of azaspiracids from naturally contaminated materials and evaluation of their toxicological effects (ASTOX), and the reduction of risk in shellfish harvesting area (REDRISK).

Work continued on the EU and INTERREG funded programmes BIOTOX - on validation of alternative methods for marine biotoxins, MATSIS - Methods of Assessment of Trophic Status in the Irish Sea, and IMAGIN - Irish Sea Marine Aggregates Initiative. The team also carried out a project called METRIC to define classification tools on plants, benthic organisms and fish to meet the needs of the Water Framework Directive, with funding from the EPA.

The NDP funded Strategic Project on Pancreas Disease started at the end of 2005 and continued in 2006. The partners in the project are Queen's University, Vet-Aqua International and the Marine Institute. The study aims to increase our knowledge of the epidemiology of Pancreas Disease, as well as improving diagnostic

capabilities and management strategies.

MEFS provided advice to the Department of Communications, Marine & Natural Resources, dealing with Foreshore Lease and Licence Applications, Dumping at Sea applications, aquaculture licences and monitoring. Team members took part in the first Strategic Environmental Assessment of Oil & Gas licensing in the Slyne, Erris & Donegal Basin.

The team worked with Marine Institute colleagues in the drafting of *Sea Change* and the associated Implementation Plan, which was submitted to the Department in December 2006.

Micheal O'Connell

Mr. Micheal O'Cinnéide
Director: Marine Environment
and Food Safety Services



SEAFOOD SAFETY

The Marine Institute is the EU Designated Irish National Reference Laboratory for Marine Biotoxins and National Reference Laboratory for monitoring bacteria and viruses in bivalve molluscs. The Biotoxin Unit provides a weekly monitoring service, which includes monitoring of phytoplankton and biotoxins in shellfish flesh, for all shellfish production areas. The programme ensures Irish compliance with EU regulations on shellfish safety. The Institute met its target, with over 92% of results published within 3 working days. Results of over 2,500 analyses were issued by fax, e-mail and SMS text messages to regulators including the (FSAI), Government Departments and the shellfish industry and published on the Institute's web site at <http://www.marine.ie/habsdatabase>. The Shellfish Microbiology Unit has developed methods for the detection of norviruses using real-time PCR.

In its role as National Reference Laboratory for Marine Biotoxins, the Institute hosted the 9th annual CRL / NRL meeting in Galway 22nd – 24th November. The 7th Irish Shellfish Safety Scientific Workshop was organised in association with the FSAI and An Bord Iascaigh Mhara (BIM) and held in Galway on 30th November.



MARINE CHEMISTRY

The Marine Institute delivered on the annual Residues monitoring report to DCMNR, the Department of Agriculture and the FSAI, as it has done each year since 1999. The team developed an LC-MS based method for the detection of Malachite Green in finfish, as part of a SafeFood funded project. The Chemistry team worked with FSAI and the seafood industry on surveys to underpin the safety of products, including dioxins in blue whiting and farmed salmon. The Marine Institute, in collaboration with the Food Safety Authority of Ireland (FSAI) and BIM, published a report "Investigation into levels of dioxins, furans, polychlorinated biphenyls and brominated flame retardants in fishery produce in Ireland." The Marine Institute worked with DCMNR to continue the monitoring programme for chemical contaminants in shellfish, to assist in meeting national obligations under the Shellfish Waters Directive, 79/923/EC. Oysters and mussels from 28 locations were tested for trace metals, PCBs and pesticides. A range of fin-fish species landed at four major Irish ports were also tested for trace metals, PCBs and pesticides. Staff provided advice to expert committees such as the Marine Licence Vetting Committee, the Corrib Gas Environmental Monitoring group, Water Framework Directive groups, ICES and OSPAR.

FISH HEALTH

The Fish Health Unit (FHU) is the designated National Reference Laboratory for Fish Diseases as well as the designated National Reference Laboratory for Mollusc Diseases. It supports the aquaculture industry and inland fisheries in maintaining Ireland's superior fish health status through the provision of both statutory services and diagnostic support.

In 2006, all marine and freshwater finfish sites were inspected and 1570 finfish were tested for the presence of the diseases listed in Directive 91/67/EEC. Under the same directive, all growing areas for the flat oyster (*Ostrea. Edulis*) were tested in spring and autumn for the presence of the parasites *Bonamia ostrea* and *Marteilia refringens*. In total, 1574 oysters were tested and in the course of this screening programme *B.ostrea* was detected in Lough Swilly for the first time. After the discovery of Bonamiosis in wild native oyster beds in Lough Foyle in 2005, an epidemiological investigation was carried out in co-operation with the Loughs Agency and DCMNR to determine the origin of the disease and to prevent further spread. This report was submitted to the EU Commission at the end of 2006. A further epidemiological study on the spread of the disease into Lough Swilly commenced at the end of 2006 and will be completed this year.

In addition to statutory testing, 1,015 molluscs and 2,505 finfish were received into the laboratory for diagnostic purposes. In the case of finfish, a significant proportion of these fish were received as a result of outbreaks of IPN in five salmon hatcheries over the summer months. In each case, Marine Institute representatives met with company managers and their veterinary advisors to establish risk management plans for the infected sites.

FHU staff screened 109 aquaculture products for the presence of anti-microbial inhibitors under Directive 96/23/EC.

The FHU provided regular advice to DCMNR and DAF on the use of veterinary medicines (7), finfish and shellfish movements within the country (78 applications); finfish imports (63) and exports (32) and shellfish imports (115) and exports (11). The Fish Health Unit Manager took part in meetings with the EU Commission, and at EU Council Working Group level to complete the drafting of a new EU Directive on fish and shellfish health. This included twelve working group meetings under the auspices of the Standing Committee on the Food Chain and Animal Health.



FISHERIES SCIENCE SERVICES

DIRECTOR'S STATEMENT

Against a background of declining fish resources, a major industry review, and proposed change to the seafood sector, 2006 was a very challenging year for Fisheries Science Services (FSS). Two major strategy documents were developed and will play a major role in shaping the future of the seafood sector in Ireland. *Sea Change – A Marine Knowledge, Research and Innovation Strategy for Ireland 2007 - 2013* was finalised in 2006 and will propose a national research strategy for the marine, including the seafood sector over the period 2007 to 2013. Furthermore, a major review of the Irish Seafood sector was undertaken in 2006 and the recommendations of this 'Seafood Strategy Review Group' will also shape the industry into 2013. Throughout 2006, FSS staff were much involved in the stakeholder consultation process and in providing material to both strategy groups. The role of Fisheries Science Services is to provide the research, assessments and advice that underpin the sustainable exploitation of living

marine resources in the waters around Ireland. This service will be key to a sustainable seafood sector.



Dr. Paul Connolly
Director: Fisheries Science Services



ASSESS

The collection of data on the resource provides the raw material for the FSS work programmes. In 2006, 13 surveys (917 scientific survey days) were carried out on RV *Celtic Explorer*, RV *Celtic Voyager* and on chartered commercial fishing vessels. These surveys focused on acoustic estimates for herring and blue whiting, a groundfish survey of the shelf waters around Ireland and a deep water trawl survey of the slope area to the west of Ireland. This involved close collaboration with UK, Russian, Norwegian, Spanish and French scientists. FSS also continued to develop its underwater TV survey programme on the prawn grounds off the Aran islands, in the Celtic Sea and Irish Sea. Data are also collected from the various inshore and offshore fleet landings. In 2006, FSS staff collected approx 250,000 length measurements, and processed over 25,000 structures in the age preparation laboratory. A sampling tracking database was developed and implemented to improve the

RESEARCH

Research is key to enhancing our assessment and advisory work. FSS participated in a number of major international research projects including MARIFISH (EU Fisheries ERANET aimed at increased national co-operation), EFIMAS (evaluating scientific advice and decision making in fisheries management systems) and EASE (European Advisory System Evaluation). A new deep water gill net proposal (DEEP CLEAN) was drafted with four international partners and submitted to EU for funding. FSS scientists also continued to supervise a range of PhD projects with various third level institutes.

FSS established a small ecosystem group in 2006 to focus on the provision of more integrated ocean advice (as opposed to fisheries advice). The initial work has focused on linking oceanographic and fisheries data in order to model spawning and recruitment of fish stocks. This research project has been set up via a joint NDP project between the NUIG Ocean and Earth's science group and FSS.

The Marine Institute organised and hosted the ICES Symposium on Fisheries Management Strategies, held in Galway in June 2006 (see website at www.ICES06sfms.com). Over 140 stakeholders (scientists, economists, sociologists, industry and managers) participated at this very successful conference and the proceedings are to be published in a special edition of the ICES Journal of Marine Science.



quality of data handling. These data were collated, and analysed for input to various national and international stock assessments on the major whitefish (e.g. cod), pelagic (e.g. mackerel) and elasmobranch (e.g. deep water shark) stocks. FSS secured funding of €2.6 million for enhanced data gathering and management under the EU Data Collection Regulation.

Working in close association with a number of agencies, Bord Iascaigh Mhara, Central Fisheries Board and Taighde Mara Teo., databases on a number of inshore species were updated, including bass, gastropod and bivalve molluscs, shrimp and crab. A tagging experiment on spider crab in Co. Kerry continued as did a review of palourde stocks. On occasion, local assessments of shellfish beds were undertaken to clarify their status.

Review papers were prepared on the fishery-associated trends in the shrimp fishery nationally and on the consequences of eight years of hydraulic dredging on the largest of the razor clam beds. A review of the status of spurdog (*Squalus acanthias*) was completed for a symposium on the species to be published in the USA.

In September, participation commenced in a project comparing the management of inshore fisheries throughout the EU using data obtained

on the characteristics and operation of a range of small scale coastal fleets. In Ireland's case the status of stock and that of the fleet are closely related, since the fleet fishes only one species. This will be an important exercise because it is the first sign of interest shown by the EU in fleets which harvest marine species predominantly within 12 nautical miles.

ADVISE

The International Council for the Exploration of the Seas (ICES) provide fisheries, environmental and ecosystem advice to the EU Commission and to EU Member States. FSS participated in over 18 ICES Expert Group meetings in 2006 and it is the main forum used by FSS for international stock assessment and advice. FSS staff held a number of key posts within ICES during 2006, including chair of the Mackerel Working Group, chair of the Elasmobranch Working Group and chair of the Management Committee on the Advisory Process. FSS staff also participated at various EU meetings including the Scientific, Technical and Economic Committee for Fisheries (STECF) and supported DCMNR staff at several EU fisheries negotiations, including the December Council of Ministers meeting. The FSS modelling and simulation

group further developed the FPRESS software application. This tool was used in the development of a management strategy for Celtic Sea herring and horse mackerel. Work was completed on a digital inshore atlas which maps inshore fishing activity in Irish coastal waters. In 2006, FSS secured EU funding of €200,000 to increase staff capacity in the area of improved advice.

OUTREACH

Working with industry is a key aspect of FSS programmes. Through the difficult times of 2006, FSS continued to engage with industry, particularly in relation to the development of management plans and the explanation of evolving scientific advice on the resource. Work commenced on three science-industry partnership projects focused on improved scientific advice for monkfish, Irish Sea cod and Celtic Sea cod. Trade press articles are an important part of FSS outreach work and in 2006, 18 trade press articles, covering a broad range of issues were published.

THE PRIMARY ROLE OF THE FISHERIES SCIENCE SERVICES IS TO RESEARCH, ASSESS AND ADVISE ON SUSTAINABLE DEVELOPMENT OF LIVING MARINE RESOURCES IN THE WATERS AROUND IRELAND.

THE PRIMARY CUSTOMERS OF FSS ARE DCMNR, EU, INDUSTRY AND THIRD LEVE SECTORS. THE MAIN PRODUCT OF FSS IS SCIENTIFIC ADVICE ON STOCKS OF INTEREST TO IRELAND AND THIS IS ENCAPSULATED IN THE ANNUAL FSS 'STOCK BOOK' PRODUCED BY THE TEAM EACH DECEMBER.



AQUACULTURE AND CATCHMENT MANAGEMENT SERVICES

DIRECTOR'S STATEMENT

Government agreement to move from mixed stock salmon fisheries to single stock fisheries on stocks meeting conservation limits during 2006 was the single most fundamental and important change to salmon management in Ireland's history. It was firmly based on scientific advice prepared by experts in the Marine Institute's Aquaculture and Catchment Management Services (ACMS) and our colleagues in the Central Fisheries Board, Environmental Protection Agency, National Parks and Wildlife Service, An Bord Iascaigh Mhara, Loughs Agency and the Agri-Food and Biosciences Institute (Northern Ireland), and supported by the National Salmon Commission and the Independent Salmon Group.

This new management regime required the development of a completely new assessment procedure based on in-river measures from traps, counters and rod catches and a new risk

framework for providing management advice in 2007 for individual rivers for the first time ever. ACMS were instrumental in developing this new procedure during 2006 with colleagues in Canada and scientists from the ICES Working Group on Northern Atlantic Salmon. The advice has led to a complete closure of over 100 rivers on conservation grounds with just forty remaining open for an angling harvest.

Fish census monitoring for salmon, sea trout and eel continued on the Burrishoole in 2006. The return of both reared and wild salmon was low and there was a drop in marine survival, both to the coast and to the river. The return of sea trout was very poor and the sea run component is now perilously close to extinction. The downstream run of silver eel was lower than in 2005.

ACMS has provided a broad range of advice to DCMNR, to specialist advisory groups (National

Salmon Commission, Independent Salmon Group, NFME etc.) and to a range of international organisations (EU Commissions, ICES, NASCO, EIFAC) on scientific issues relating to stock management and conservation of eels and salmon. Advice relating to sea lice control, bay and near shore coastal zone management has also been provided to DCMNR. ACMS is very active internationally and currently holds the Chair of ICES Diadromous Fish Committee, the Chair of the Standing Scientific Committee of the National Salmon Commission and the Presidency of NASCO. ACMS has also provided advice and support to a broad range of stakeholder groups both in Ireland and abroad.

ACMS is also contributing to a number of MI cross service teams including those dealing with Video Stock Assessment Technology, Aquaculture, Smartcoast, SmartBay, Climate Change, and the formulation of the Institute's Five-Year Corporate

AQUACULTURE

The Marine Institute participated in an offshore aquaculture project (OATP), funded under the EU Sixth Framework Programme (FP6) to investigate how the establishment of a technology platform might assist the aquaculture industry in establishing offshore aquaculture as a sustainable and viable alternative to traditional near shore aquaculture. The duration of the project is 14 months with a total budget of €200,000. The partners in the project are the Marine Institute, CETMAR (Spain) and SINTEF (Norway). An Advisory Group comprising 13 other interest groups from six EU countries and Norway has also been established.

The Institute has also been supporting the development of organic salmon production by industry to supply a series of niche markets for quality Irish salmon, through the Single Bay Management and other industry liaison initiatives, as well as through technical committees which are developing organic standards for farmed fish. The Institute is also involved in a very successful cross-agency initiative to commercially farm cod with NUI Galway, Taighde Mara Teo, and BIM. The first commercial harvest from this project is expected early in 2007.

A major initiative was undertaken between the Institute and the Veterinary College of University College Dublin to develop a sea lice vaccine. The work was supported with funding from Enterprise Ireland and the NDP. Other work on sea lice included the development of bioassays to determine sea lice sensitivity to treatments in order to optimise treatment regimes, an investigation of sea lice infestation on wild Atlantic salmon as they return to our offshore waters, and studies on post-smolt infestation. Sea lice infestation of rainbow trout was also studied.

The Institute has developed a pilot GIS based coastal zone management (CZM) tool for use in the management of aquaculture and other inshore activities such as pot fishing and angling. Work is progressing on the saltwater culture of Char, on the production of juvenile scallops for aquaculture, and on an interim bio-secure hatchery space for culture of ova and fry as part of the industry initiative to ensure IPN free fish stock.



Plan. Considerable progress was made in the first half of 2006 in consolidating the National Fish Counter Programme. An agreement has been reached with the Fisheries boards on the future management of the counters and staff of the Regional Fisheries Boards have been trained in the operation and validation of fish counters in their regions with a view to the Boards taking over the maintenance, upkeep and validation of these counters in the future.

Keneth J. Whelan

Dr. Ken Whelan
Director: Aquaculture and Catchment
Management Services



SALMON

The new single stock management regime developed during the year is in keeping with best international practice, commitments from the North Atlantic Salmon Conservation Organisation (NASCO) to apply the precautionary approach to salmon fishing, ICES and the EU Commission, who require salmon populations to be maintained at favourable conservation status. This move was essential to halt rapidly declining salmon stocks in Ireland and to allow stock rebuilding in rivers currently below their conservation limits. Research continues on providing in-river assessment of salmon stocks in large rivers (e.g. Moy, Suir, Nore, Barrow, Corrib and Laune etc.) with the Moy project entering its second year. The potential to develop salmon ranching opportunities for fishermen affected by the closure of the mixed stock fisheries at sea is also being investigated by ACMS. In addition, plans for a full marine project to collect information on salmon migrations and distributions at sea are well progressed under NASCO's SALSEA initiative and suitable funding opportunities are being targeted to allow this vital programme to go ahead.

EEL

A project tracking thirty silver eels was undertaken in the Burrishoole catchment and a variety of behaviours were observed, ranging from eels that migrated relatively quickly all the way to sea, to eels that stopped at various points for extended periods of time. A full analysis of the data will take place in 2007.

AQUAREG

This EU InterReg IIIC programme, which initially received €4.2 million in EU funding, has recently been approved for additional funding and a time extension of one year. A total of €600,000 in additional funding has been approved of which €200,000 has been allocated to the Broader Midlands and Western region. Four projects selected by the Aquareg Steering Committee for extension include CZM (integrated coastal zone management), OPEL (cod), Lobster (lobster restocking) and RegEx (an inter-regional exchange programme). Overall, AQUAREG has been an unqualified success, both for Ireland and as an international EU project.



OCEAN SCIENCE SERVICES

DIRECTOR'S STATEMENT

In 2006 the Ocean Science Services Group (OSS) had its busiest year to date, contributing to a wide range of activities at national and international level and significantly to the national Marine Knowledge, Research and Innovation Strategy development process - *Sea Change*.

OSS now provides comprehensive and integrated operational and research services to support Marine Institute activities, the Irish RTDI community and international marine research activity where Irish researchers are significant partners. OSS is very active in a wide range of European and international activities and fora.

Highlights for the year:

- Successful delivery of schedule for the RV *Celtic Explorer* from January to December (315 days).
- Successful delivery of the RV *Celtic Voyager* Programme (183 days).
- Three successful commercial programmes were completed on both vessels in order to secure an external contribution to the operational budget.
- Commencement of the Marine Institute's contract with P&O Maritime Services (Irl.) Ltd. to operate both research vessels in March 2006. All shore-side staff and crew were transferred successfully to P&O Maritime Services (Irl.) Ltd.
- In April and May the RV *Celtic Explorer* undertook the Lesser Antilles Pelagic Ecosystem (LAPE) survey in the Caribbean for the United Nations Food & Agriculture Organisation.
- The RV *Celtic Explorer* carried out the Marine Aerosol Production survey in June and July in the North East Atlantic.
- In July, the RV *Celtic Explorer* carried out sea trials of the MeBo robotic drill rig which was used to investigate cretaceous and Jurassic sources of oil in the Porcupine Bank area of the North East Atlantic.
- Other Marine Institute programmes such as the Groundfish and Herring fisheries surveys, the Underwater TV Nephrops survey and the Annual Nutrient Monitoring survey were successfully completed throughout the year.
- In October, Research Vessel Operations hosted the 20th International Ship Operators' Meeting at the Marine Institute in Oranmore. Over fifty international vessel operators attended the two-day event.
- From September to December 2006, the RV *Celtic Voyager* underwent a major refit which included an overhaul of all mechanical equipment, replacement of the existing crane, upgrade of the main server, installation of new

RESEARCH VESSEL OPERATIONS

This section continued to coordinate and manage the operation of the Marine Institute's two research vessels, the *Celtic Voyager* and the *Celtic Explorer* and to provide support services to the users of the vessels, including instrumentation and engineering support services and extremely flexible operations.

ADVANCED MAPPING SERVICES

This section provided marine mapping expertise to allow the detailed charting of both the seabed and the marine habitats it supports. The section also conducted integrated survey activity within the INFOMAR Project, in conjunction with the Geological Survey of Ireland, and developed and implemented value-added products, services and ancillary projects from the Seabed Survey activity in order to maximise the potential of survey activity.

OCEANOGRAPHIC SERVICES

This section provided comprehensive the oceanographic services underpinning many national programmes. Key services included the management of the national equipment pool and management and operations of Irish Marine Data Buoy Network. Oceanographic Services provided significant input to the provision of a data service to the marine community. The section was also active in ocean modelling and coastal oceanography, including the development of the Irish National Tide Gauge Network.



CTD davit, increased storage space, installation of an AC electrical system and a complete repainting of the vessel.

- The annual 'Bright Sparks' competition for five days ship time on the RV *Celtic Voyager* was won by University College, Cork whose project demonstrated a multi-disciplinary approach to studying the hydrodynamic and sedimentology processes over four sites in the Eastern Irish Sea area. OSS participated in, and provided survey control on this project.
- A new pilot Data Acquisition System for the Irish National Weather Buoy Network was delivered, allowing two-way communications and troubleshooting with the buoys remotely.
- Pre-operational data was made available for Irish waters from the three-dimensional physical circulation model developed by Oceanographic Services.
- Online wave model forecasts were made available to the general public.
- The Irish National Tide Gauge Network continued to expand and to include the development of multiple sites in the Dublin area and Castletownbere, Co. Cork.
- The new M6 deep-water weather buoy was deployed west of Porcupine Bank.
- ICES oceanographic sections were completed between the Irish coast and Rockall Bank.
- Three principal work packages of the ESONIM [Cabled Seas Observatory] project were delivered, including science justification, engineering feasibility and draft finance model.
- OSS was a partner in the successful FP6 Network of Excellence European Seas Observatory Network (ESONET) contract, to be signed in early 2007.
- Excellent coverage of the seabed within the Biologically Sensitive area to the West of Bantry and Dunmanus Bays was achieved as part of the INFOMAR survey programme, including:
 - Implementation of an extensive sediment sampling and groundtruthing programme within the Biologically Sensitive Area.
 - Successful seabed mapping on the Marine Institute *Nephrops* surveys.
 - Two week integrated seabed mapping cruise MESH (Development of a framework for Mapping European Seabed Habitats) Consortium work with the BGS and AFBI NI.
- The Ocean Science Services team also participated in the RV *Corystes* MEH cruise with the Agri - Food and Biosciences Institute (Northern Ireland) working on the NW Continental shelf and led the South West CMRC-

BIM seafloor mapping endeavour looking at the scallop habitats.

- OSS participated in the first Strategic Environmental Assessment for Oil and Gas Activity in Ireland's Offshore Atlantic Waters: IOSEA1 Slyne, Erris and Donegal Bay.
- OSS hosted the ICES Working Group for Marine Habitat Mapping and ratification of the Irish multibeam calibration standards, as well as hosting and organising the Irish Stakeholders MESH workshop.
- Significant liaison and participation in strategic international and European groups was a significant feature of the programme in 2005 (eg. ICES, ERVO, ISOM, GMES, ESONIM, ESONET, EuroGOOS, IBI-ROOS and NOOS).

Michael Gillooly

Mr. Michael Gillooly
Director : Ocean Science Services



STRATEGIC PLANNING AND DEVELOPMENT SERVICES

DIRECTOR'S STATEMENT

The national Marine Knowledge, Research and Innovation Foresight Exercise that commenced in 2004, was successfully completed and presented to Government along with a full implementation plan. Output from the Foresight Exercise was used to inform the marine component of the National Strategy for Science, Technology & Innovation (2006 – 2013) published by Government in June 2006.

2006 marked the end of the very successful €52 million Marine RTDI Funding Programme (National Development Plan 2000 – 2006) with significant investment in marine research infrastructure (e.g. *RV Celtic Explorer*) and over €14 million in marine research funding being made available to the public (e.g. Universities and Institutes of Technology) and private (mainly SME) sectors.

Work on the national Marine Tourism and Leisure Strategy was successfully completed with the presentation to Government of a Water-based

Tourism and Leisure Development Strategy 2007-2013. The strategy is supported by an in-depth Water-based Tourism and Leisure Product Audit.

A key achievement within the Technology Programme was the launch of the National Ocean Energy Strategy prepared by the Marine Institute and Sustainable Energy Ireland.

On the international front, strategic inputs by the Strategic Planning & Development Services (SPDS) Team, including the 2004 Galway Declaration and the Marine Global Market Analysis (2005) were acknowledged in the EU Maritime Green Paper: *A European Vision for the Seas and Oceans* (June 2006). Similarly, input by SPDS, in association with the National EU 7th Framework Programme Negotiating Team (Dept Enterprise, Trade & Employment), resulted in a high profile being given to marine sciences and technologies in the Commission's new FP7 Research Funding Programme (2007 – 2013).



Ms. Yvonne Shields
Director: Strategic Planning
and Development Services



MARINE TECHNOLOGY

The Technology Programme continued to promote a range of new technology-based opportunities for the marine sector.

2006 saw the launch a National Ocean Energy Strategy providing a phased series of research and development supports to underpin the growth of this emerging industry in Ireland. These included:

- the establishment of a Test Site for Wave Energy devices off Spiddal, Co. Galway.
- the testing of scale prototypes being developed by Wavebob Ltd. and Ocean Energy Ltd.
- recruitment to the Blue Power Initiative, Hydraulics and Maritime Research Centre (HMRC) UCC.

Work on the suite of Advanced Technologies projects, jointly funded by the Marine Institute and the Environmental Protection Agency, are proceeding satisfactorily. In March, the first of an Annual Series of Workshops, designed to communicate this research to end-users and industry, was held at the Institution of Engineers of Ireland. Related Desk Studies and Post-doctoral Fellowships in Offshore Aquaculture Technology, Underwater Robotics and Cyber-infrastructure were undertaken and plans for the further up-scaling of these technologies in a major Test and Demonstration infrastructure project – SMARTBAY – were taken forward.

In the field of marine biotechnology, work on a Proof-of-Concept Biodiscovery Project was initiated and plans for a national initiative in the field of Marine Functional Foods advanced. Strategic links with national initiative in Adaptive Information and Nanobiotechnology were strengthened and will form the basis of future collaborative projects. The fifth report in the Marine Foresight Series – *Marine Functional Foods and Functional Ingredients* was completed and will be the focus of a major Seminar in 2007.



TOURISM AND LEISURE

Through the Marine Tourism and Leisure Strategy Working Group, a national Water-Based Tourism and Leisure Development Strategy (2007-2013) was successfully completed. This innovative strategy sets out a framework for development, investment and resource management actions to be delivered across government departments, agencies and industry. The strategy is supported by an in-depth Water-based Tourism and Leisure Product Audit, undertaken by Royal Haskoning Ireland Ltd, Donegal County Council and the Marine Institute. The audit identifies future product development and investment opportunities and its key findings and recommendations were submitted to the national tourism product audit, prepared by Fáilte Ireland in advance of the NDP 2007-2013.

MARINE RTDI MEASURE – NDP

2006 marked the final year for the commitment of funding under the Marine RTDI Measure (NDP 2000–2006). Funding approved in 2006 included:

- Three fisheries research projects (grant-aid: €330,000) which will provide new information to improve the advice to managers on key fish stocks (e.g. cod and anglerfish).
- Research grant-aid totalling €495,883 was awarded to 11 proposals under a competitive call for the acquisition of prioritised infrastructure.

- A competitive call for ship time funding for the national marine research vessels, the *Celtic Explorer* and *Celtic Voyager*, resulted in the awarding of funding to four research groups to the value of €302,000.

- Forty-two Networking and Technology Transfer Awards (e.g. workshops and travel & mobility grants) totalling €41,307 were funded.

A full account of investments in marine research and capacity building over the period of the Marine RTDI Measure (2000 – 2006) is contained in the publication *Oceans of Opportunity (2000-2005)*.

INFORMATION & DEVELOPMENT

The SPDS Information Services & Development (IS&D) Team continued to support the scientific and business needs of the Marine Institute through a range of projects including the new www.marine.ie website, a new internet map viewer (www.maps.marine.ie) and a management information system for the Fish Health Unit. Other major deliverables included support to Ocean Science Services in developing a high power modelling cluster, improvements to the Marine Data Model and the restructuring the Marine Institute IT infrastructure.

FORESIGHT AND PLANNING

Foresight and planning activities throughout 2006 focussed on the completion of *Sea Change: A Marine Knowledge, Research & Innovation Strategy for Ireland 2007 – 2013* and the associated Marine Foresight Exercise for Ireland.

Two meetings of the Marine Institute Third-Level Liaison Group were held in addition to further consultation with key stakeholders. Input was provided to both the National Strategy for Science, Technology and Innovation 2006-2013 and the National Development Plan 2007-2013.

In late 2006 the fifth report of the Marine Foresight Series was published – *Marine Functional Foods and Functional Ingredients* to assist in defining a national research programme in marine functional foods which is being developed by the Marine Institute, in conjunction with Department of Agriculture and Food, Enterprise Ireland, BIM and Teagasc.

INTERNATIONAL PROGRAMMES

The Marine Institute, in its role of promoting marine science and technology on the European research agenda, worked closely with the National EU 7th Framework Programme Negotiating Team (Dept Enterprise, Trade & Employment), to successfully confirm marine sciences and technologies as a priority cross-cutting theme in the Commission's new FP7 Research Funding Programme (2007 – 2013). This is consistent with the position advocated by the Marine Institute and proposed in the national Irish negotiating position on FP7 (DETE, 2005).



Over the period 2000 – 2006, Irish marine researchers have competed successfully in 97 collaborative EU funded research projects winning over €22.8 million in grant-aid (see Appendix 1). In the marine science policy area, strategic inputs by the SPDS Team, including the 2004 Galway Declaration and the Marine Global Market Analysis (2005), were acknowledged in the EU Maritime Green Paper (June 2006) which advocates “an all-embracing maritime policy aimed at developing a dynamic maritime economy in harmony with the marine environment, supported by sound marine scientific research and technology”. In November, the Marine Institute was invited to make a presentation to the Oireachtas Joint Committee on European Affairs on the Maritime Green Paper.

Collaborative reports completed in 2006 included:

- Navigating the Future III: Perspectives on Marine Science and Technology in Europe. Marine Board - ESF (November 2006).
- A Preliminary description of Member State Marine Research Funding Programmes and Implementation Procedures. EU MarinERA Project. Report No.1 (May 2006).



GENERAL ADMINISTRATION

LIAISON

The programme of the Marine Institute covers a wide range of activities that require close liaison and co-operation with many individuals and organisations. These include the Department of Communications, Marine and Natural Resources, Department of Finance and other government departments and state agencies, private enterprise and the higher education sector. The Institute acknowledges the continued support and co-operation of all concerned.

HEALTH AND SAFETY

In accordance with the Health and Safety and Welfare Act (1989), the Marine Institute has up-dated all Health and Safety Statements. The Institute continues to implement appropriate measures to protect the safety and health of all employees and visitors to its premises.

ETHICS AND PUBLIC OFFICE ACT

All persons holding a designated position within the Marine Institute provide a statement of interests to the Public Office Commission in accordance with sections 18 and 20 of the Ethics in Public Office Act, 1995.

EMPLOYMENT EQUALITY

The Marine Institute is committed to a policy of equal opportunity and adopts a proactive approach to equality. The Institute operates a number of schemes that provide staff with options in relation to meeting their career and personal needs, such as job sharing, study leave and educational programmes.

CODE OF PRACTICE (REPORTING)

The Marine Institute adheres to the statutory Codes of Practice for Governance of State Bodies as laid down by the Department of Finance. The Institute can confirm that Directors and employees have adopted and are trained on:

- Formal code of conduct on conflict of interest and customer charter
- Properly constituted Audit Committees
- Procurement procedures
- Sensitive Issues

APPENDICES

APPENDIX 1 // IRISH PARTICIPATION IN EU RTD PROJECTS UNDER:

A) THE FP6 / INTERREG-III PROGRAMME

European Union Framework (FP) and Regional Development (INTERREG) Programmes continue to play a major role in facilitating and supporting Irish participation in pan-European cooperative marine research and regional development projects and initiatives.

Under the FP6 Programme (2002-2006), 11 collaborative projects were approved for funding in 200. This brings the total number of competitive marine research projects with Irish participation, supported under FP6, to 59 (total grant-aid €10.6million).

Full details of the above projects will be included in the publication: Oceans of Opportunity-II: Review of EU Marine Research Projects with Irish Participation (Marine Institute 2007).

Under the INTERREG-III suite of Programmes (2000-2006), two further projects were added, bringing the total number of marine projects recorded to 40 (total grant-aid: €12.2million).

An INTERREG-III Directory describing 38 of these projects (excluding IMAGIN-Extension and FINAL which were approved late in 2006) was published by the Marine Institute in June 2006).

EU FP6 PROJECTS

ECOOP: European Coastal Shelf Sea Operational Observing and Forecasting Systems
Marine Institute

ESONET-NOE: European Seas Observatory Network
Marine Institute, CSA Group

EUCAARI: European Integrated Project on Aerosol Cloud Climate and Air Quality Interactions
National University of Ireland, Galway

GEOMON: Global Earth Observation & Monitoring
National University of Ireland, Galway

MONRUK: Monitoring the Marine Environment in Russia, Ukraine and Kazakhstan using Synthetic Aperture Rada
University College Cork

SPICOSA: Science and Policy for Coastal System Assessment
University College Cork

OATP: Offshore Aquaculture Technology Platform
Marine Institute, Irish Offshore Aquaculture Consortium

LIMES: Land/Sea Integrated Monitoring for European Security
University College Cork

MARIFISH: Coordination of National and Regional Marine RTD Activities in Europe
Marine Institute

BIFF: Bivalves from Farm to Fork
Daithí ó Murchú Marine Research Station (Cork)

TRAMWAYS: Transfer of Knowledge in Microbial Signal Transduction Pathways and Metagenomics
University College Cork

INTERREG-III

FINAL: Forecasting Initiation of Blooms of Toxic Algae (INTERREG-IIIB NEW)
National University of Ireland, Galway

IMAGIN: The Irish Sea Marine Aggregates Initiative (Extension) (INTERREG-IIIA I/W)
Marine Institute, University College Cork

B) THE FP6 / AQUAREG PROGRAMME

AQUA BY-PRODUCTS
IFA Aquaculture

CZM: Coastal Zone Management
Marine Institute

CRAB TRANSPORT
BIM

Lobster Restocking
MRI Carna

OPEL: Culture of Atlantic Cod
MRI Carna

AQUAGAIR: Prolonging the Shelf-life of Fresh Mussels
Letterkenny IT

BIOPURALG: Seaweeds as Filters for Wastewater
Irish Seaweed Centre MRI Oystercreek Ltd

RegEx: Regional Exchange of Information in Aquaculture and Inshore Fishing
Marine Institute

Carrasea: Evaluation of Carrageen Seaweed Production
Irish Seaweed Centre MRI

SEAWO-MAN: Developing Co-operation and Information Exchange
Marine Institute

APPENDICES

APPENDIX 2 // NDP MARINE RTDI MEASURE 2006

The Marine Measure is one of six thematic RTDI Measures supported under the Operational programme of the National Development Plan 2000-2006. It aims to provide the RTDI capacity and infrastructure to enable Ireland to fully utilise its marine resource potential in a sustainable manner. The Marine Institute, on behalf of the Department of Communications, Marine & Natural Resources, and reporting to a National Monitoring Group established by the Department of Finance and the Department of Enterprise, Trade & Employment, is the implementing body for the Marine RTDI Measure.

The guiding objectives of the Measure are:

To enhance and consolidate the performance of the marine sector in Ireland through support for R&D and technology transfer activities; and

To provide the RTDI capacity and infrastructure to enable Ireland to fully utilise its marine resource potential in a sustainable manner.

By December 2006, €46.7 million was allocated and/or expended across the three sub-measures created to structure investment during the lifetime of the plan:

Enhanced Provision of Research Vessel Capacity (Sub-Measure 1) - €26.5m for the provision of the 65-metre multi-purpose RV *Celtic Explorer*.

Upgrading Marine RTDI Infrastructure (Sub-Measure 2) - By December 2006, funding had been committed for the following:

18 projects had received grant-aid totalling €764,422 for the upgrade of marine laboratories and facilities.

€3m was invested in the new Marine Institute Headquarters in Oranmore in laboratory equipment and infrastructure.

€650,000 was invested in a lifetime extension refit of the RV *Celtic Voyager* which will extend the lifetime of the vessel for another 10 years.

Supporting Marine RTDI Fund (Sub-Measure 3) - By December 2006 the RTDI measure had committed funding of €15.8m, of which €12m has been paid, for the following:

22 Applied Industry Projects (€1.23m)

26 Strategic Projects (€8.44m)

13 Post Doctoral Fellowships (€1.95m)

14 Desk Studies (€0.7m)

12 PhD Scholarships (€1.25m)

2 Micro Innovation Awards (€14,000)

6 Technical Assistance Awards (€226k)

130 Networking/Technology Transfer (NTT) Awards (€177k)

4 National Research Vessel Ship Time Grant Aid Awards (€302,000)

3 Industry Liaison Officers (€266,000)

Administration (€1.28m)

Total (€15.84m)

2006 HIGHLIGHTS

1) INFRASTRUCTURE CALL 2006

An open competitive call for prioritised infrastructure funding resulted in 11 successful projects (from 15 applications) receiving grant-aid to the total value of €495,883

Bioactive Compound Production in Seaweeds

Department of Botany, MRI, NUIG
Total Grant-Aid: €39,089

Coastal Monitoring of Cetacean Populations

Marine Biodiversity Group, GMIT
Total Grant Aid: €18,634

Cod Broodstock Facility

NUIG, Trosc Teo. & Cod Management Group
Total Grant-Aid: €43,100

Development of Marine Research Capacity in South East

Estuarine Research Group (WIT), ISIQ, Univ. Newfoundland
Total Grant-Aid: €85,923

Early Life History of Marine Organisms, Research & Training Unit

Commercial Fisheries Research Group, GMIT
Total Grant-Aid: €25,237

Equipment for Biotech & Coastal Monitoring

Department Zoology, MRI, NUIG
Total Grant-Aid: €40,535

Modular High Resolution Imaging Survey Platform

University of Limerick
Total Grant-Aid: €99,967

Purchase a Class ii Biological Safety Glass Cabinet

RESC, Dublin Institute Technology
Total Grant-Aid: €7,478

APPENDICES

APPENDIX 2 // NDP MARINE RTDI MEASURE 2006

Purchase (& Training) of a Continuous Plankton Recorder

Centre for Earth & Ocean Science, NUIG
Total Grant-Aid: €50,000

Temperature Controlled Seaweed Hatchery Facility at C-Mar

C-Mar, Queens University Belfast
Total Grant-Aid: €63,740

Upgrade of Algal Production & Incubation Units

Life & Physical Sciences, GMIT
Total Grant-Aid: €22,180

2) OPEN SHIP-TIME CALL 2006

Four research groups received funding totalling €302,000 for the use of the national marine research vessels following a competitive call for ship time funding:

RV Celtic Voyager

Geo-Hazard Identification (7 Days) - Geological Survey of Ireland

Application of Seabed Acoustic Data in Fish Stock Assessment (28 Days) - UCC

RV Celtic Explorer

Marine Aerosol Production (23 Days) - National University of Ireland, Galway

MeBo Porcupine Bank Drilling (15 Days) - Irish Shelf Petroleum Studies Group

3) STRATEGIC PROGRAMME 2006

ST/05/07: Phlorotannins in Irish Brown Seaweeds: Investigations of their UV-protective Effects and Potential as Natural Sunscreens

Grantee: National University of Ireland, Galway
Grant-aid: €110,332

ST/05/02 (Extension): The Use of Genetic Stock Identification (GSI) Techniques to Determine the River of Origin of Irish Atlantic Salmon

Grantee: University College Cork
Grant-aid: €271,971

4) FISHERIES RESEARCH 2006

In 2006, three research projects (Grant-aid €330,000) of aimed at providing new information to improve the knowledge and advice available to managers for key fish stocks of importance to the Irish fleet, were funded:

- A survey-based assessment of the anglerfish stock off the west and south coast of Ireland;
- Cod movement in the Celtic Sea; and
- Cod recovery in the Irish Sea Cod Box.

5) NETWORKING & TECHNOLOGY TRANSFER 2006

Forty-two awards totalling €41,307 were granted during 2006, consisting of sponsorship for 6 Workshop/Conferences, 31 Travel & Mobility Grants and 5 'Other' NTTs. The Workshops/ Conferences supported under this scheme in 2006 were:

- Coastal Atlases Workshop: Potential and Limitations of Coastal Web Atlases
- ECO-IMAGINE: Building Coastal Knowledge and Geographic Information
- Scaled Physical Model Testing Techniques (Workshop)
- Irish Seaweed Industry Annual Conference
- Challenger Special Interest Group (Workshop)
- Irish Postgraduate Ecology Forum 2007

APPENDICES

APPENDIX 3 // MARINE INSTITUTE PUBLICATIONS

SPECIAL REPORTS

Reports from the FSS mini-symposia 2004-2005
Codling E.A., Kelly, C.J. [editors] (2006)
ISBN : 1-902895-29-0

The Stock Book – Annual Review of fish stocks in
2006 with management advice for 2007
ISBN : 1-902895-34-7

The Herring Fisheries of Ireland. (1900 – 2005)
Biology, Research, Development and Assessment
John Molloy, Marine Institute (235 pp)
ISBN: 1-902895-30-4

Sea Change - A Marine Knowledge, Research &
Innovation Strategy for Ireland. 2007-2013
ISBN: 1-902895-31-2

Sea Change (2007 – 2013) Part II – A Marine
Foresight Exercise for Ireland
ISBN: 1-902895-32-0

MARINE TOURISM & LEISURE SPECIAL REPORTS

Water-based Tourism and Leisure Product Audit
(2006)
*Huskyes E., Royal Haskoning, O'Connor, K., Donegal
County Council.*
ISBN 987-1-902895-36-9

MARINE FORESIGHT SERIES ISSN: 1649 – 590X

No. 5: Marine Functional Foods and Food Ingredients.
Hurst, D. (2006)

INTERNATIONAL CO-OPERATION PUBLICATIONS

Directory of Irish marine successes in the EU
Regional Development INTERREG III Programme
2000 – 2006
Mercer M, Meade C, & G. O'Sullivan (2006)

NATIONAL DEVELOPMENT PLAN (NDP)

Oceans of Opportunity - Exploring Ireland's
Marine Resources
Review of Projects 2000-2005 Supported under
the Marine Research, Technology, Development &
Innovation (RTDI) Measure (NDP 2000-2006)

IRISH FISHERIES BULLETIN PUBLICATIONS ISSN: 1649-5055

No. 24: 2006
National Survey of Sea Lice [*Lepeophtheirus
Salmonis* Krøyer and *Caligus Elongatus
Nordmann*] on Fish Farms in Ireland – 2005
*O'Donohoe, P., Kane, F., Kennedy, S., Nixon, P., Power,
A., Naughton, O. Oisín and Jackson, D. (2006)*

No. 25: 2006
Some Thick Shelled Whelk [*Buccinum
undatum*] Characteristics and Fisheries in Ireland
Fahy, E., Grogan, S., Byrne, J. and Carroll, J. (2006)

No. 26: 2006
Gutted to round-weight conversion factors for
anglerfish [*Lophius piscatorius* and *Lophius
budegassa*]
Gerritsen H., and Lordan, C. (2006)

IRISH FISHERIES INVESTIGATIONS SERIES ISSN: 0578 – 7467

No. 16: 2006
Population Dynamics, Age, Growth and Maturity
of Lemon Sole *Microstomus kitt* (Walbaum 1792)
Sampled between 2000-2002 Off the West
Coast of Ireland"
*King, P., Hannan, J.F., McGrath, D., Veldon, M.
(2006)*

No. 17: 2006
F-PRESS: A stochastic simulation tool for
developing fisheries management advice and
evaluating management strategies (2006)
Codling E.A., Kelly, C.J. (2006)

MARINE ENVIRONMENT AND HEALTH SERIES ISSN NO: 1649-0053

No. 23: 2006
Karenia mikimotoi :an exceptional dinoflagellate
bloom in western Irish waters, Summer 2005
J Silke (2006) in proceedings of 6th Irish shellfish
safety workshop

No. 24: 2006
Guidelines for the Assessment of Dredge Material
for disposal in Irish Waters
*M. Cronin, E. McGovern, T. McMahon & R. Boelens.
(2006)*

No. 25: 2006
Trace Metal Concentrations in Shellfish from
Irish Waters
*B. Boyle, L. Tyrell, B. McHugh, E. Joyce, J. Costello,
D. Glynn & E. McGovern (2006)*

No. 26: 2006
Investigations into levels of dioxins, furans,
polychlorinated bipenyls and brominated flame
retardants in fishery produce in Ireland
*C. Tlustos, B. McHugh, I. Pratt, L. Tyrell and E.
McGovern (2006)*

APPENDICES

APPENDIX 4 // PUBLICATIONS

SCIENTIFIC PAPERS

Comparison of domoic acid concentration in king scallops, *Pecten maximus* from seabed and suspended culture systems

Bogan, Y.M., Kennedy, D., Harkin, A.L., Gillespie, J., Hess, P., Slater, J.W. [2006] *J. Shellfish Res.* 25 (1), 129-135

Discarding by the demersal fishery in the waters around Ireland

Borges, L., Officer, R and Rogan, E. [2006 in press]. *Fisheries Research*

Terminology for the ageing of chondrichthyan fish using dorsal-fin spines

Clarke, M.W. and Irvine, S.B. [2006 in press]. *Environmental Biology of Fishes*

Temporal variation in immune response genes in anadromous *Salmo trutta* in an Irish river before and during aquaculture activities: Evidence from comparing major histocompatibility class I embedded microsatellites with neutral markers in archival scales

Coughlan, J., McGinnity, P., O'Farrell, B., Dillane, E., Diserud, O., de Eyto, E., O'Farrell, K., Whelan, K., Stet, R.J.M. and Cross, T. [2006]. *ICES Journal of Marine Science* 63, 1248-1255

HAB Buoy: a new instrument for in situ monitoring and early warning of harmful algal bloom events

Culverhouse, P.F., Williams, R., Simpson, B., Gallienne, C., Reguera, B., Cabrini, M., Fonda-Umani, S., Parisini, T., Pellegrino, F.A., Pazos, Y., Wang, H., Escalera, L., Moróño, A., Hensey, M., Silke, J., Pellegrini, A., Thomas, D., James, D., Longa, M. A., Kennedy, S. and del Punta, G. [2006] *African Journal of Marine Science*

A Tidal and Surge Model of the North East Atlantic

Cure, M. and Lyons, K. [2006] *Proceedings of the ROMS Annual Conference (Alcala De Henares)*

Natural selection acts on Atlantic salmon MHC variability in the wild

de Eyto, E., McGinnity, P., Consuegra, S., Coughlan, J., Tufto, J., Farrell, K., Jordan, W. C. Cross, T., Megens, H.-J., Stet, R. [2007]. *Proceedings of the Royal Society B, FirstCite Early Online Publishing* DOI: 10.1098/rspb.2006.0053

Report of FP6-project FP6-022488, Restoration of the European eel population; pilot studies for a scientific framework in support of sustainable management: EU SLIME. 19 pp. + CD

Dekker, W., Pawson, M., Walker, A., Rosell, R., Evans D., Briand, C., Castelnau, G., Lambert, P., Beaulaton, L., Åström, M., Wickström, H., Poole, R., McCarthy T.K., Blaszkowski, M., de Leo G. and Bevacqua, D. [2006]

The Irish coastal current: A seasonal jet-like circulation

Fernand, L., Nolan, G.D., Raine, R., Chambers, C.E., Dye, S.R., White, M. and Brown, J. [2006]. *Continental Shelf Research*, Vol. 26, Issue 15, 1775-1793

A review of the status of Irish Sea Trout Stocks

Gargan, P., Poole, R., & Forde, G. [2006]. In: *Sea Trout: Biology, Conservation and Management (Harris, G.S. & Milner, N.J., Eds)*. *Proceedings of the First International Sea Trout Symposium*, July 2004, Cardiff, Wales, UK. Blackwell Publishing, Oxford, pp. 25-44

Variability in the assignment of maturity stages of plaice (*Pleuronectes platessa* L.) and whiting (*Merlangius merlangus* L.) using macroscopic criteria

Gerritsen H.D. and McGrath D. [2006] *Fisheries Research* Vol. 77 (1), 72-77

A simple method for comparing age-length keys reveals significant regional differences within a single stock of haddock (*Melanogrammus aeglefinus*)

Gerritsen H.D., McGrath D. and Lordan C. [2006] *ICES Journal of Marine Science*, Vol. 63 (3), 1096-1100

Trawling: Historic development, Current Status and Future Challenges

Graham, N., [2006]. *Marine Technology Society Journal*, Volume 40, Number 3 pp 20-24

Separation of fish from *Nephrops norvegicus* into a two-tier cod-end using a selection grid

Graham N. and Fryer, R.J., 2006. *Fisheries Research*, 82 pp 111-118

Fishing practice, gear design and the ecosystem approach – Three case studies demonstrating the effect of management strategy on gear selectivity and discards

Graham, N., Ferro, R.S.T., Karp, W.A. and Macmullen, P., In press. *ICES Journal of Marine Science*

Three Rs Approaches in Marine Biotoxin Testing The Report and Recommendations of a joint ECVAM/DG SANCO Workshop (ECVAM Workshop 55)

Hess P., Grune B., Anderson D.B., Aune T., Botana L.M., Caricato P., van Egmond H.P., Halder M., Hall S., Lawrence J.F., Moffat C., Poletti R., Richmond J., Rossini G.P., Seamer C. and Serratos Vilageliu J. [2006] *Altern. Labor. Anim. (ATLA)* 34, 193-224

Genetic and ecological effects of salmon aquaculture on wild salmon: modelling from experimental results

Hindar, K., Fleming, I.A., McGinnity, P. and Diserud, O. [2006]. *ICES Journal of Marine Science* 63, 1234-1247

"Cheap and Dirty" fisheries science and management in the North Atlantic [2006]

Kelly, C.J., Codling E.A. [2006]. *Fisheries Research*, 79: 233-238

The Irish Sea cod recovery plan: some lessons learned

Kelly, C.J., Codling, E.A., Rogan E. [2006]. *ICES Journal of Marine Science* 63: 600-610

APPENDICES

APPENDIX 4 // PUBLICATIONS

Effect of azaspiracid-1 on action potential generation and voltage-gated currents in cultured spinal cord neuronal networks

Kulagina, N.V., Twiner, M.J., Doucette, G.J., Ramsdell, J.S., Hess, P., McMahon, T., O'Shaughnessy, T.J., Ma, W. [2006]. Toxicon 47, 766-773

The reproductive biology of hake from the south west of Ireland

Lannin, A, Connolly, P. and Rogan E. [2006 Submitted]. Journal of Fish Biology

Tissue distribution and effects of heat treatments on the content of domoic acid in blue mussels, *Mytilus edulis*

McCarron P. and Hess P. [2006]. Toxicon 47, 473-479

To assess the genetic effects of the introgression of farmed Atlantic salmon on wild salmon populations

McGinnity, P. and Verspoor, E. [2006]. ICES CM 2006/F:01, (ToR e) Ref. 1, ACME, ACE

Navigating the Future III – Updated Synthesis of Perspectives on Marine Science and Technology in Europe

Minster, J-F, Connolly N, Carbonnière A, de Leeuw J, Evrard M, Mees J, Nittis K, O'Sullivan G, Walter N. [2006]. Marine Board-ESF Position Paper No 8 [November 2006]

Ocean climate variability on the western Irish Shelf, an emerging time series

Nolan, G. and Lyons, K., [2006] Proceedings of the ICES Annual Science Conference, Theme Session C, C:28

IBI-ROOS Plan: Iberia Biscay Ireland Regional Operational Oceanographic System 2006-2010

Nolan, G., and Cure, M. [among IBI-ROOS authors] [2006] EuroGOOS Publication No. 24, December 2006

A Preliminary Description of MarinERA Member State Marine Research Funding Programmes and Implementation Procedures

O'Sullivan G, & N. Hedlund [2006]. EU MarinERA Report No 1

Characteristics of the Burrishoole sea trout population: census, marine survival, enhancement and stock recruitment, 1971-2003

Poole, W.R., Dillane, M., deEyto, E., Rogan, G., McGinnity, P. & Whelan, K. [2006]. In: Sea Trout: Biology, Conservation and Management (Harris, G.S. & Milner, N.J., Eds). Proceedings of the First International Sea Trout Symposium, July 2004, Cardiff, Wales, UK. Blackwell Publishing, Oxford, pp. 279-306

Precision and bias in the age determination of blue whiting *Micromesistius poutassou* (Risso 1810), within and between age readers [2006]

Power, G.R., King, P.A., Kelly, C.J., McGrath, D., Mullins, E., Gullaksen, O. [2006] Fisheries Research, 80: 312-321

Long-term declines in body size and shifts in run timing of Atlantic salmon in Ireland

Quinn, T., McGinnity, P. and Cross, T.F. [2006]. J. Fish Biol. 68, 1713–1730

Intra-adrenal interactions in fish: catecholamine stimulated cortisol release in sea bass (*Dicentrarchus labrax* L.)

Rotllant, J., Ruane, N. M., Dinis, M. T., Canario, A. V. M. & Power, D. M. [2006]. Comparative Biochemistry & Physiology Part A, Vol. 143, 375-381

A multi-user approach to management of the Irish Fishery for orange roughy

Shepherd, S. Connolly, P. and Rogan, E. [2006 in Press]. ICES Journal of Marine Science

Monitoring the incidence of escaped farmed Atlantic salmon, *Salmo salar* L., in rivers and fisheries of the United Kingdom and Ireland: current progress and recommendations for future programmes

Walker, A.M., Beveridge, M.C.M., Crozier, W., Ó Maoiléidigh, N., and Milner, N. [2006]. ICES Journal of Marine Science, 63:1201-1210

Identification of fatty acid esters of pectenotoxin-2 seco acid in blue mussels (*Mytilus edulis*) from Ireland

Wilkins A.L., Rehmann N., Torgersen T., Rundberget T., Keogh M., Petersen D., Hess P., Rise F., Miles C. O. [2006] J. Agric. Food Chem. 54, 5672-5678

APPENDICES

APPENDIX 4 // PUBLICATIONS

CONFERENCE PROCEEDINGS AND PRESENTATIONS

Quantifying error sources in deepwater acoustic surveys.

Doonan, I. (2006) ICES Annual Science Conference (Maastricht, Sept 2006)

Fishing Gear Design and the ecosystem approach – demonstrating the effects of management.

Graham, N. (2006) ICES Symposium on Fisheries Management Strategies (Galway June 2006)

Fit-for-purpose Shellfish Reference Materials for Phycotoxins in Internal and External Quality Control.

Hess, P. (2006) Oral Presentation at 10th Intl. Conf. Biological and Environmental Reference Materials (BERM-10) April 30th to May 4th 2006, Charleston, South Carolina US.

The Application of Process Control to Fisheries Management.

Kelly, C.J. (2006) ICES Symposium on Fisheries Management Strategies (Galway June 2006)

'Tied to the mast of the Johannesburg Declaration', when is recovery not possible and who decides ?

Kelly, C.J., Codling, E. and Cambell, A. (2006) ICES Annual Science Conference (Maastricht, Sept 2006)

Effect of Addition of Antibiotics and an Antioxidant, on the Stability of Tissue Reference Materials for Domoic Acid, the Amnesic Shellfish Poison.

McCarron P., Burrell S., Hess P. (2006) Poster presentation at 10th Intl. Conf. Biological and Environmental Reference Materials (BERM-10) April 30th to May 4th 2006, Charleston, South Carolina US.

Feasibility of Irradiation as a Stabilisation Technique in the Preparation of Tissue Reference Materials for a Range of Shellfish Toxins.

McCarron P., Kotterman M., de Boer J., Rehmann N., Hess P. (2006) Poster presentation at 10th Intl. Conf. Biological and Environmental Reference Materials (BERM-10) April 30th to May 4th 2006, Charleston, South Carolina US.

Does Discarding sustain the Irish Nephrops Fishery?

Moore, S.J. Lordan, C and Briggs, R. (2006) ICES CM 2006/K. ICES Annual Science Conference (Maastricht, Sept 2006)

Irish Shellfish Biotoxin Monitoring Programme

J Silke, T McMahon, P Hess (2006) in Henshilwood et al.: Molluscan Shellfish Safety. Marine Institute, Galway, Ireland

APPENDICES

APPENDIX 5 // CENSUS DATA FROM THE BURRISHOOLE SYSTEM, 2006

UPSTREAM CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2006 (PROVISIONAL)

SPECIES	SALMON LEAP 2006	MILL RACE 2006	TOTALS 2006	TOTALS 2005	TOTALS 2004
Wild Grilse	303	57	360	532	580
Wild Spring Salmon	20	12	32	9	28
Reared Grilse	534	151	685	952	962
Wild Sea Trout	5	1	6	11	18
Wild Finnock	13	11	24	4	72
Wild Brown Trout	33	16	49	86	70

DOWNSTREAM CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2006

SPECIES	SALMON LEAP 2006	MILL RACE 2006	TOTALS 2006	TOTALS 2005	TOTALS 2004
Wild Salmon Smolt	6736	1190	7926	7261	9316
Wild Sea Trout Smolt	592	36	628	781	723
Sliver Eel	1793	365	2158	2593	2905

The core programme in Burrishoole of fish census and juvenile fish production in streams and lakes has continued to underpin much of the scientific advice provided by ACMS and is instrumental to the development of many indices and models essential for the management of these migratory stocks.

APPENDICES

APPENDIX 6 // RESEARCH VESSEL PROGRAMME 2006

CELTIC VOYAGER

INSTITUTE	SCIENTIST / SERVICE AREA	DATES	LOCATION	DESCRIPTION
Marine Institute	Garvan O'Donnell	15/01/2006 - 30/01/2006	Irish Sea	Annual Nutrients Survey
Marine Institute	Fiona Fitzpatrick	03/02/2006 - 03/02/2006	West	Intercalibration
NUIG	Rachel Cave	13/02/2006 - 15/02/2006	West	Student Training
GMIT	Dave McGrath	16/02/2006 - 17/02/2006	West	Student Training
Marine Institute	Hans Gerritsen	24/02/2006 - 05/03/2006	North	Groundfish Survey
CEFAS	Steve Milligan	07/03/2006 - 18/03/2006	Irish Sea	Spawning Stock Biomass Survey
TCD	Jim Wilson	21/03/2006 - 21/03/2006	East	Student Training
CEFAS	Steve Milligan	24/03/2006 - 04/04/2006	East	Spawning Stock Biomass Survey
Marine Institute	Sheena Fennell	06/04/2006 - 07/04/2006	East	M2 Databuoy Maintenance
Marathon Oil	Site Survey	25/04/2006 - 03/05/2006	South	Site Survey
Marine Institute	Glenn Nolan	10/05/2006 - 17/05/2006	Irish Sea	Oceanographic Survey
Marine Institute	Sheena Fennell	18/05/2006 - 20/05/2006	North West	M4 Databuoy Maintenance
CMRC	Gerry Sutton	23/05/2006 - 29/05/2006	South East	Seabed Mapping
Marine Institute	Colm Lordan	01/06/2006 - 08/06/2006	West	Underwater TV Survey
Marine Institute	Sheena Fennell	12/06/2006 - 13/06/2006	South East	M5 Databuoy Maintenance
TCD	Jim Wilson	15/06/2006 - 15/06/2006	East	Student Training
RPII	Kevin Kelleher	19/06/2006 - 19/06/2006	East	RPII Survey
Marine Institute	Garvan O'Donnell	20/06/2006 - 26/06/2006	Irish Sea	MATSIS Survey
Marine Institute	Colm Lordan	28/06/2006 - 07/07/2006	Celtic Sea	Underwater TV Survey
GSI	Xavier Monteys	09/07/2006 - 15/07/2006	Malin shelf	Geophysical Survey
CMRC	Gerry Sutton	16/07/2006 - 05/08/2006	South East	Seabed Mapping
Marine Institute	Sheena Fennell	12/06/2006 - 13/06/2006	South West	M53 Databuoy Maintenance
NPWS	Eamonn Kelly	11/08/2006 - 11/08/2006	West	Training Programme
Marine Institute	Fiona Fitzpatrick	14/08/2006 - 27/08/2006	North West	MESH Survey
Marine Institute	Colm Lordan	29/08/2006 - 07/09/2006	Irish Sea	Underwater TV Survey
UCC/TCD	Andy Wheeler	09/09/2006 - 13/09/2006	Irish Sea	Bright Sparks Competition
GMIT	Dave McGrath	19/09/2006 - 20/09/2006	West	Student Training
Marine Institute	Sheena Fennell	06/08/2006 - 08/08/2006	South West	M3 Databuoy Maintenance
Marine Institute	N/A	23/09/2006 - 20/12/2006	North	Half-Life Refit

APPENDICES

APPENDIX 6 // RESEARCH VESSEL PROGRAMME 2006

CELTIC EXPLORER

INSTITUTE	SCIENTIST / SERVICE AREA	DATES	LOCATION	DESCRIPTION
Marine Institute	Ciaran O'Donnell	04/01/2006 - 24/01/2006	North West	North West Herring Acoustic Survey
Marine Institute	Glenn Nolan	26/01/2006 - 02/02/2006	Porcupine Bank	Oceanographic Survey
Marine Institute	Fiona Fitzpatrick	03/02/2006 - 03/03/2006	West	Intercalibrations
Marine Institute	Aodhan Fitzgerald	04/02/2006 - 04/02/2006	West	Buoy Deployment
Island Oil and Gas	Fiona Fitzpatrick	08/02/2006 - 15/03/2006	West	Site Survey
GMIT	Dave McGrath	18/03/2006 - 18/03/2006	West	Student Training
GMIT	Dave McGrath	19/03/2006 - 19/03/2006	West	Student Training
Marine Institute	Aodhan Fitzgerald	20/03/2006 - 20/03/2006	West	Wavebob Device Deployment
Marine Institute	Ciaran O'Donnell	21/03/2006 - 10/04/2006	North West	Blue Whiting Survey
FAO	Paul Fanning	12/04/2006 - 06/06/2006	Atlantic	Lesser Antilles Pelagic Ecosystem Survey
NUIG	Colin O'Dowd	07/06/2006 - 07/07/2006	Atlantic	Marine Aerosol Production Survey
CSA/Petroleum Affairs Division	Nick O'Neill	13/07/2006 - 27/07/2006	West	Drill Rig Sea Trial
Marine Institute	Fiona Fitzpatrick	28/07/2006 - 30/08/2006	South West	INFOMAR Survey
Marine Institute	Paul Connolly	04/09/2006 - 16/09/2006	West	Deep Water Survey
Marine Institute	Glenn Nolan	18/09/2006 - 22/06/2006	West	M6 Buoy Deployment
Marine Institute	Rick Officer	23/09/2006 - 28/09/2006	West	Groundfish Intercalibration
Marine Institute	Ciaran O'Donnell	01/10/2006 - 21/10/2006	Celtic Sea	Herring Acoustic Survey
Marine Institute	Rick Officer	22/10/2006 - 02/12/2006	West	Groundfish Survey
Marine Institute	n/a	03/12/2006 - 20/12/2006	Killybegs	Extension to Deck/Shell in Mooney's Boatyard

APPENDICES

APPENDIX 7 // FOREIGN MARINE SCIENTIFIC RESEARCH (FMSR) ACTIVITIES IN IRISH WATERS IN 2006

COUNTRY	VESSEL NAME	FROM	TO	LOCATION	CRUISE
United Kingdom	Benaiah IV	01/02/2006	01/04/2006	Irish Sea	Irish Sea Gadoid Survey
United Kingdom	Endeavour	05/02/2006	18/02/2006	Irish Sea	Irish Sea Spawning Stock Biomass Survey
United Kingdom	Our Josie Grace	06/02/2006	31/03/2006	Celtic Sea	Celtic Sea Cod Survey
United Kingdom	Endeavour	08/03/2006	21/03/2006	Celtic Sea	Bottom Trawl Survey
United Kingdom	Scotia	11/03/2006	31/03/2006	NE Atlantic	Demersal Trawling Survey
Netherlands	Pelagia	14/03/2006	04/04/2006	Atlantic Shelf Break	Anaerobic Ammonium Oxidation Sediment Regulation Survey
Norway	G.O. Sars	15/03/2006	17/04/2006	NE Atlantic	Blue Whiting Acoustic Survey
United Kingdom	Prince Madog	20/04/2006	29/04/2006	Irish Sea and Liverpool Bay	MATSIS Irish Sea Nutrients Survey
Norway	Libas	08/05/2006	08/06/2006	NE Atlantic	Mackerel Tagging and Biological Sampling Survey
Netherlands	Pelagia	19/06/2006	07/07/2006	Rockall Bank and Hatton Bank	Cold-water Coral Survey
United Kingdom	Endeavour	19/06/2006	10/07/2006	Irish Sea, Celtic Sea, English Channel, North Sea	Biological and Contaminant Survey
United Kingdom	Discovery	24/06/2006	11/07/2006	Porcupine Abyssal Plain	Deep Water Chlorophyll Survey
Netherlands	Pelagia	07/07/2006	24/07/2006	Mingulay Reef, Hebrides	Cold-water Coral Survey
United Kingdom	Prince Madog	11/09/2006	18/09/2006	Irish Sea and Liverpool Bay	MATSIS Irish Sea Nutrients Survey

APPENDICES

APPENDIX 8 // CONFERENCES, EVENT AND WORKSHOP SPONSORSHIP IN 2006

MONTH	EVENT	DATES
January	BT Young Scientist Exhibition	10th - 14th January
February	Planet Aqua Primary Schools Interactive Educational Exhibition – Cork	1st - 10th February
	Scientific Cable Conference (SCC06) Dublin Castle	8th - 10th February
	Planet Aqua Primary Schools Interactive Educational Exhibition – Dublin	20th February - 1st March
March	Irish Skipper Expo, Galway	3rd - 4th March
May	Marine and Water-Based Tourism – A Framework for Collaboration – A North/South Workshop. Stormont Hotel, Belfast	18th May
June	Cetacean Research Seminar – Marine Institute, Galway	16th June
	International Council for the Exploration of the Seas (ICES)	27th - 30th June
	Symposium on Fisheries Management – Galway	
	“Fish Ireland 2006” Industry Workshop and Fisheries Exhibition – Killybegs	29th June - 1st July
July	Virginia Conference – “Law of the Sea Conference” – Dublin Castle	12th - 14th July
September	European Marine Biology Symposium – University College, Cork	4th - 8th September
	ICES Annual International Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy (WGMHSA), Marine Institute, Oranmore, Co. Galway	5th - 14th September
October	Exploring the Potential for the Development of Water-based Tourism & Leisure – Interreg Programmes 2007-2013 – Workshop, Skibereen, West Cork.	18th October
	Underwater Sound & Marine Life Workshop – Marine Institute, Galway	24th October
	International Ship Operators’ Meeting – Marine Institute, Galway	25th - 26th October
	Connemara Sea Week – Letterfrack, Co. Galway	28th - 29th October
November	COREPOINT/CoastNet Conference, on the European Maritime Policy – Marine Institute, Galway	8 November
	IMAGIN Stakeholders Workshop on “Initiative for Marine Aggregates in the Irish Sea” – Arklow, Co. Wicklow	29 November
	7th Irish Shellfish Safety Workshop – Marine Institute, Galway	30 November

APPENDICES

APPENDIX 9 // NATIONAL AND INTERNATIONAL SCIENTIFIC WORKING GROUPS AND ADVISORY BODIES CHAIRED BY MARINE INSTITUTE STAFF

INTERNATIONAL BODIES

INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEAS (ICES)

Working Group on Environmental Interactions of Mariculture (WGEIM)	Francis O'Beirn	Chairman
Working Group (jointly hosted by Intergovernmental Oceanographic Commission) on Harmful Algae Bloom Dynamics (WGHABD)	Joe Silke	Chairman
Working Group on Marine Chemistry	Evin McGovern	Co-Chairman
Review Group on the Assessment of Southern Shelf Demersal Stocks (RGSSDS)	Colm Lordan	Chairman
Management Committee on the Advisory process (MCAP)	Paul Connolly	Chairman
Joint EIFAC/ICES Working Group on Eel	Russell Poole	Chairman

THE MARINE INSTITUTE ALSO PROVIDES EXPERT STAFF AS MEMBERS OF THE FOLLOWING COMMITTEES AND WORKING GROUPS:

- Advisory Committee for Fisheries Management (ACFM)
- Advisory Committee on Ecosystems (ACE)
- Mariculture Committee
- Marine Chemistry Working Group (MCWG)
- Marine Shellfish Culture Working Group
- Working Group on Marine Sediments
- North Atlantic Salmon Working Group (WGNAS)
- Study Group on By-catch of Salmon in Pelagic Fisheries (SGBYSAL)
- Various Irish/UK Expert & Working Groups on Water Framework Directive (WFD)
- Advisory Committee on Ecosystems
- ICES/EIFAC Working Group on Eel
- Advisory Committee on the Marine Environment (ACME)
- Working group on Oceanic Hydrography
- ICES Working Group on Integrated Coastal Zone (WGICZM)
- Resource Management Committee (RMC)
- Study Group on Management of Integrated Data
- Iberian-Biscay-Irish Regional Ocean Observing System Technical Task Team
- Working Group on Application of Genetics to Fisheries Management and Mariculture
- Working Group on Southern Shelf Demersal Seas (WGSSDS)
- Working Group on Northern Shelf Demersal Seas (WGNSDS)
- Working Group on Hake, Monk and Megrim Stocks (WGHMM)
- Study Group on Management Strategies (SGMAS)
- Methods Working Group (WGMG)
- Working Group on Harmful Algal Bloom Dynamics
- Working Group Marine Habitat Mapping

APPENDICES

EUROGOOS

EUROGOOS

Board of Directors Glenn Nolan Board Member

The Marine Institute also provides expert staff as members of:

- Steering group for the North West shelf Ocean Observing System (NOOS)

NORTH ATLANTIC SALMON CONSERVATION ORGANISATION (NASCO)

Ken Whelan President

The Marine Institute also provides expert staff as part of the EU Delegation to NASCO and the Scientific Advisory Group (SAG)

EUROPEAN INLAND FISHERIES ADVISORY COMMISSION (EIFAC)

Biennial Official Session Russell Poole National Correspondent
Russell Poole Head of Delegation

EIFAC is a Commission of FAO responsible for the provision of advice on inland waters and fisheries.

The Marine Institute also provides expert staff as part of the Irish Delegation to EIFAC.

OSLO-PARIS CONVENTION (OSPAR)

ASMO Committee Evin McGovern Head of Delegation
(Assessmen& Monitoring)

SIME Working Group Evin McGovern Head of Delegation
(WG on Substances in
the Marine Environment)

MON Working Group Brendan McHugh Head of Delegation

Working Group on Integrated
Integrated Biological Effects
and Chemical Monitoring
(WKIMON) Brendan McHugh Head of Delegation

Working Group on
Environmental Impact of
Human Activities (EIHA) Eugene Nixon Head of Delegation

The Marine Institute also provides expert staff as members of the:

- Biodiversity Committee
- Offshore Industry Committee

APPENDICES

EUROPEAN SCIENTIFIC AND WORKING GROUPS

The Marine Institute provides expert staff as members of the following groups:

EUROPEAN COMMITTEE FOR STANDARDISATION (CEN),
TECHNICAL COMMITTEE 275, WORKING GROUP 5]

Philipp Hess	Also Representing
Sinead Keaveney	National Standards
	Authority of Ireland

EU MARINE STRATEGY (EMMA) WORKING GROUP (EUROPEAN MARINE
MONITORING AND ASSESSMENT)

Evin McGovern	Head of Delegation
---------------	--------------------

AMPERA (ACCIDENTAL MARINE POLLUTION) EU CO-ORDINATION
ACTION PROJECT

Evin McGovern	Executive Board
	Member

EU-MAURITANIA JOINT SCIENTIFIC COMMITTEE (JSC)

Ciaran Kelly	Member
--------------	--------

EU FISH HEALTH COUNCIL WORKING GROUP.

Fiona Geoghegan	National
	Representative

EUROPEAN RESEARCH VESSEL OPERATORS (ERVO)

John Breslin	Chairman
--------------	----------

EU FP6 GLOBAL CHANGE AND ECOSYSTEMS PROGRAMME COMMITTEE

Geoffrey O'Sullivan	National Delegate
---------------------	-------------------

EU MARINERA PROJECT

Co-ordination of National and Regional Marine Research Activities in Europe
(2004 - 2008)

Technical Committee	Geoffrey O'Sullivan	Joint Chair
		(2004 – 2006)

INTERREG-IIIa (IRELAND / WALES) PROGRAMME

Programme Committee	Geoffrey O'Sullivan	Delegate for the
		Marine & Coastal
		Environment
		(Priority 2 /
		Measure 1)

MARINE BOARD - EUROPEAN SCIENCE FOUNDATION

Marine Board	Geoffrey O'Sullivan	Vice Chairman
Working Group on Marine	John Joyce	Chairman
Science Communications		

The Marine Institute also provides expert members of staff to serve on:

- Working Group on Remote Sensing
- Working Group on the Impact of Climate Change on European Seas and Oceans
- Working Group on European Ocean Fleets

APPENDICES

COMMUNITY REFERENCE LABORATORY NETWORK (CRL) / NRL

Marine Biotoxins	Terry McMahon Philipp Hess	Representatives of the Marine Institute in its role as EU National Reference Laboratory on Marine Biotoxins
Bacteria and Viruses in Shellfish	Bill Dore Sinead Keavney	Representatives of the Marine Institute in its role as EU National Reference Laboratory on monitoring Bacteria and Viruses in Shellfish
Diseases of Fish and Shellfish	Fiona Geoghegan Deborah Cheslett	Representatives of the Marine Institute in its Role as National Reference Laboratory for Fish & Mollusc Diseases

NATIONAL BODIES

FOOD SAFETY AUTHORITY OF IRELAND

The Marine Institute provides expert staff to serve on:

- Scientific Committee
- FAC Subcommittee
- Biotoxin Working Group
- Molluscan Shellfish Safety Committee
- Food Safety Promotion Board Research Network on Natural Toxins and Anti-Nutritional Compounds

DEPARTMENT OF COMMUNICATIONS, MARINE AND NATURAL RESOURCES

Marine Licence Vetting Committee	Terry McMahon Francis O'Beirn Margot Cronin	Chairman Member Member
----------------------------------	---	------------------------------

The Marine Institute also provides expert members of staff to serve on:

- Aquaculture Licensing Advisory Committee
- Technical Advisory Group to the Irish Quality Salmon Scheme
- Sea Lice Working Group
- Shellfish Waters Management Committee
- Cod Advisory Group
- ICZM Steering Committee
- AquaReg Steering Committee
- International Council for Offshore Aquaculture Development Steering Committee
- Working Group on the Management of Eel

NATIONAL SALMON COMMISSION

Standing Scientific Committee	Niall O'Maoileidigh	Chairman
-------------------------------	---------------------	----------

APPENDICES

SCIENTIFIC JOURNALS

Marine Institute staff also serve as reviewers on the following scientific journals:

- Aquaculture – Proceedings of the 7th International Workshop on Smoltification, Tono, Japan, 2005.
- Aquatic Living Resources
- Canadian Journal of Fish Biology
- Conservation Biology
- Ecology
- Fisheries Research
- Fisheries Management and Ecology
- ICES Journal of Marine Science
- Journal of Chromatography
- Journal of Fish Biology
- Journal of Theoretical Biology
- Journal of Shellfish Research
- Journal of Sea Research
- Journal of Experimental Marine Biology and Ecology
- Oecologia
- Toxicon

Marine Institute expert staff also serve on the following national and international groups:

- International Atlantic Salmon Research Board
 - Scientific and Economic Committee on Fisheries (STECF) of the European Union
 - European Food Safety Authority (EFSA) working group on Marine Biotoxins (Contam Panel)
 - National Salmon Commission, Standing Scientific Committee
 - Loughs Agency (Cross Border)
 - Western Region Tourism Development Board
 - Irish Tourism Industry Confederation – Executive Council
 - Marine Leisure Infrastructure Strategy for the Western Division of Cork County Council
 - Fáilte Ireland – Inland Cruising Strategic Review Committee
 - Fáilte Ireland – Angling Marketing Coordination Committee
-

GLOSSARY OF ABBREVIATIONS

AC	Alternating Current	EC	European Commission
ACFM	Advisory Committee on Fisheries Management	EEC	European Economic Community
ACMS	Aquaculture and Catchment Management Services [of the Marine Institute]	EIFAC	European Inland Fisheries Advisory Commission
ALO	Aquaculture Liaison Officer	EPA	Environmental Protection Agency
ARC	Aquaculture Research Committee	ERA	European Research Area
ASP	Amnesic Shellfish Poisoning	ESF	European Science Foundation
AZP	Azaspracid Poisoning	ESF-MB	European Science Foundation – Marine Board
BIM	Bord Iascaigh Mhara [the Irish Sea Fisheries Board]	EU	European Union
BMW	Border, Midlands & Western Region	FATS	Fisheries Assessment Technicians
CEFAS	Centre for Environment, Fisheries and Aquaculture	FHU	Fish Health Unit
CEH	Centre for Ecology and Hydrology	FP6	Sixth Framework Programme
CETMAR	Centro Tecnológico del Mar, Vigo, Spain	FSAI	Food Safety Authority of Ireland
CEO	Chief Executive Officer	FSS	Fisheries Science Services
CFP	Common Fisheries Policy	GIS	Geographic Information System
CMA	Connecticut Maritime Association	GMIT	Galway Mayo Institute of Technology
CMRC	Coastal & Marine Resources Centre, Cork	GSI	Geological Survey of Ireland
CZM	Coastal Zone Management	HABS	Harmful Algal Blooms Service
CTD	Conductivity, Temperature and Depth	HMRC	Hydraulics and Maritime Research Centre
DAF	Department of Agriculture and Forestry	ICES	International Council for the Exploration of the Seas
DARDNI	Department of Agriculture and Rural Development, Northern Ireland	ICT	Information Communications Technology
DAS	Data Acquisition System	IFA	Irish Farmers Association
DCMNR	Department of Communications Marine and Natural Resources	IFREMER	Institut français de recherché pour l'exploration de la mer (French Research Institute for the Exploration of the Sea)
DG SANCO	European Commission Health and Consumer Protection Directorate	IFSHAC	Irish Fish and Shellfish Advisory Committee
DIT	Dublin Institute of Technology	IHO	International Health Organisation
DSP	Diarrhetic Shellfish Poisoning	ILAB	Irish Accreditation of Laboratories
DTX-2	Dinophysistoxin - 2	IPN	Infectious Pancreatic Necrosis
		ISA	Infectious Salmon Anaemia
		ISAV	Infectious Salmon Anaemia Virus

GLOSSARY OF ABBREVIATIONS

ISEAS	Irish Seafarers Educational Assistance Scheme	PMDS	Performance Management Development Systems
ISPG	Irish Seafood Producers Group	PSP	Paralytic Shellfish Poisoning
IT	Information Technology	QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe
IMDO	Irish Maritime Development Office	R&D	Research and Development
INTERREG	EU Inter-Regional Co-operation Programme	RASATA	Rapid Azapriacid Shellfish Toxin Analysis
LC/MS	Liquid Chromatography – Mass Spectrometry	RPB	Radiological Protection Institute of Ireland
MARLAB	Fisheries Research Services Marine Laboratory	RTD	Research, Technology and Development
MEFS	Marine Environment and Food Safety Services (of the Marine Institute)	RTDI	Research, Technology, Development and Innovation
MHC	Major Histocompatibility Complex	RV	Research Vessel
MI	Marine Institute	SALSEA	International Salmon at Sea Research Programme
MOU	Memorandum of Understanding	SCOFAH	Standing Committee on the Food Chain and Animal Health
MSR	Marine Scientific Research	SDMS	Ships Data Management System
MTDS	Marine Technical and Development Services	SINTEF	Stiftelsen For Industriell og Teknisk Forskning – Norwegian research organisation
NAB	National Accreditation Board	SMEs	Small to Medium Sized Enterprises
NASCO	North Atlantic Salmon Conservation Organisation	SPDS	Strategic Planning and Development Services
NDP	National Development Programme	STECF	Scientific, Technical and Economic Committee on Fisheries
NEAFC	North East Atlantic Fisheries Commission	STI	Science Technology and Innovation
NOAA	National Oceanic and Atmospheric Administration	TAC	Total Allowable Catch
NSC	National Salmon Commission	TCD	Trinity College Dublin
NUIC	National University of Ireland, Cork	UCC	University College Cork
NUIG	National University of Ireland, Galway	UETP	University Enterprise Training Partnership
NZ	New Zealand	UK	United Kingdom
OIE	Office International des Epizooties (World Organisation for Animal Health)	UN	United Nations
OSPAR	Oslo and Paris Convention (1992)	UNCLOS	United Nations Convention on the Law of the Sea
OSS	Ocean Science Services (of the Marine Institute)	UNICPOLOS	United Nations Informal Consultative Process on the Oceans and the Law of the Sea
OST	Office of Science and Technology	US	United States
PAD	Petroleum Affairs Division	USA	United States of America
PCB	Polychlorinated Biphenyls		

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL

FOR PRESENTATION TO THE HOUSES OF THE OIREACHTAS

I have audited the financial statements of the Marine Institute for the year ended 31 December 2006 under the Marine Institute Act 1991.

The financial statements, which have been prepared under the accounting policies set out therein, comprise the Accounting Policies, the Income and Expenditure Account, the Statement of Total Recognised Gains and Losses, the Balance Sheet, the Cash Flow Statement and the related notes.

RESPECTIVE RESPONSIBILITIES OF THE THE INSTITUTE AND THE COMPTROLLER AND AUDITOR GENERAL

The Institute is responsible for preparing the financial statements in accordance with the Marine Institute Act 1991, and for ensuring the regularity of transactions. The Institute prepares the financial statements in accordance with Generally Accepted Accounting Practice in Ireland. The accounting responsibilities of the Members of the Board are set out in the Statement of Responsibilities of the Board.

My responsibility is to audit the financial statements in accordance with the relevant legal and regulatory requirements and International Standards on Auditing (UK and Ireland).

I report my opinion as to whether the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland. I also report whether in my opinion proper books of account have been kept. In addition, I state whether the financial statements are in agreement with the books of account.

I report any material instance where moneys have not been applied for the purposes intended or where the transactions do not conform to the authorities governing them.

I also report if I have not obtained all the information and explanations necessary for the purposes of my audit.

I review whether the Statement on Internal Financial Control reflects the Institute's compliance with the Code of Practice for the Governance of State Bodies and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements. I am not required to consider whether the Statement on Internal Financial Control covers all financial risks and controls, or to form an opinion on the effectiveness of the risk and control procedures.

I read other information contained in the Annual Report, and consider whether it is consistent with the audited financial statements. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements

BASIS OF AUDIT OPINION

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgments made in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Institute's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements.

OPINION

In my opinion, the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland, of the state of the Institute's affairs at 31 December 2006 and of its income and expenditure for the year then ended.

In my opinion, proper books of account have been kept by the Institute. The financial statements are in agreement with the books of account.



John Purcell
Comptroller and Auditor General
28 June 2007

STATEMENT OF RESPONSIBILITIES OF THE BOARD

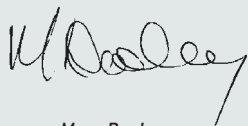
Section 12 of the Marine Institute Act, 1991, requires the Institute to prepare financial statements in such a form as may be approved by the Minister for Communications, Marine and Natural Resources. In preparing those financial statements, the Board of the Institute is required to

- Select suitable accounting policies and apply them consistently
- Make judgements and estimates that are reasonable and prudent
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements
- Prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Institute will continue in operation.

The Institute is responsible for keeping proper books of account which disclose with reasonable accuracy at any time the financial position of the Institute and which enable it to ensure that the financial statements comply with Section 12(1) of the Act. The Institute is also responsible for safeguarding its assets and for taking reasonable steps for the prevention and detection of fraud and other irregularities.



Kevin Bonner
Chairman



Mary Dooley
Board Member

STATEMENT ON INTERNAL FINANCIAL CONTROL

On behalf of the Board of the Marine Institute I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely period.

The Board has taken steps to ensure an appropriate control environment is in place by:

- Clearly defining management responsibilities and powers;
- Establishing formal procedures for monitoring the activities and safeguarding the assets of the organisation;
- Developing a culture of accountability across all levels of the organisation.

The Board has agreed a terms of reference for an internal audit review of risk management due to be carried out in early 2007:

- To evaluate the appropriateness and effectiveness of the existing policy and procedures in identifying and evaluating business risks;
- Identifying the nature, extent and financial implication of risks facing the body including the extent and categories which it regards as acceptable;
- Assessing the likelihood of identified risks occurring;
- Working closely with Government and various Agencies to ensure that there is a clear understanding of the Marine Institute's goals and support for the Institute's strategies to achieve those goals.

The system of internal financial control is based on a framework of regular management information, administration procedures including segregation of duties, and a system of delegation and accountability. In particular it includes:

- A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;
- Regular reviews by the Board of periodic and annual financial reports which indicate financial performance against forecasts;
- Setting targets to measure financial and other performance;
- Formal project management disciplines.

The Marine Institute has established an internal audit function that operates in accordance with the Framework Code of Best Practice set out in the Code of Practice on the Governance of State Bodies. The work of internal audit is informed by analysis of the risk to which the body is exposed, and annual internal audit plans are based on this analysis. The analysis of risk and the internal audit plan for 2006 was endorsed by the Audit Committee and approved by the Board. The Audit Committee has received the report of internal audit activity in 2006. The report included the Internal Auditor's opinion on the adequacy and effectiveness of the system of internal financial control. The Board's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor, the audit committee which oversees the work of the internal auditor, the executive managers within the Marine Institute who have responsibility for the development and maintenance of the financial control framework, and comments made by the Comptroller and Auditor General in his management letter.

A review of the effectiveness of the system of internal financial controls was carried for 2006.

On behalf of the Board:



Kevin Bonner

Chairman : Marine Institute

ACCOUNTING POLICIES

YEAR ENDED 31 DECEMBER 2006

1. GENERAL

The financial statements have been prepared under the accruals method of accounting, except as stated below, and in accordance with generally accepted accounting principles. Financial reporting standards recommended by the recognised accounting bodies are adopted as they become operative.

2. INCOME

Income arising from Oireachtas Grant in Aid is recognised on a cash receipts basis.

3. FIXED ASSETS AND DEPRECIATION

Depreciation is provided for on a straight line basis at rates estimated to reduce the assets to their realisable value by the end of their expected lives. The rates in use are as follows:

Buildings	2%
Fixtures & Fittings	25%
Computers	33%
Research Vessel	4%
Research Vessel Equipment	25%
Motor Vehicles	20%
Land is not depreciated	

4. LEASED ASSETS

Payments under operating leases (Note 17) are charged to the income and expenditure account in the year to which they relate.

5. CAPITAL ACCOUNT

The Capital Account represents the unamortised value of income applied for capital purposes.

6. FOREIGN CURRENCIES

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rates ruling at the Balance Sheet date. Revenues and costs are translated at the exchange rates ruling at the dates of the underlying transactions.

7. MARINE RESEARCH TECHNOLOGY DEVELOPMENT INNOVATION PROJECTS (RTDI)

The Marine Institute enters into commitments in respect of contracts awarded for Marine RTDI projects. Expenditure is charged in the financial statements on the basis of initial payments made on signing of the project contract, an interim payment may be made subject to satisfactory performance and further payments are charged on receipt and verification of claims in respect of work completed. Costs incurred by the Institute in the administration of RTDI projects are funded by the National Development Plan (NDP) and charged to the financial statements as they are incurred.

8. DEFERRED FUNDING ASSET FOR PENSIONS

The Marine Institute operates defined benefit pension schemes which are funded annually on a pay as you go basis from monies available to it, including monies provided by the Department of Communications, Marine and Natural Resources.

Pension costs reflect pension benefits earned by employees in the period and are shown net of staff pension contributions which are remitted to

the Department of Communications, Marine and Natural Resources. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Recognised Gains and Losses and a corresponding adjustment is recognised in the amount recoverable from Department of Communications, Marine and Natural Resources.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from Department of Communications, Marine and Natural Resources.

INCOME AND EXPENDITURE ACCOUNT

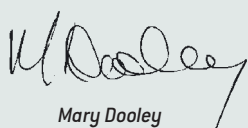
YEAR ENDED 31 DECEMBER 2006

		2006		2005	
	Note	€'000	€'000	€'000	€'000
Income					
Direachtas Grants	2		27,839		26,429
Other Income	3		8,563		6,493
Net Deferred Funding for Pensions	16		2,051		1,852
			38,453		34,774
Transfer (to)/from Capital Account	11		(1,125)		895
			37,328		35,669
Expenditure					
Corporate Services	4	12,777		5,794	
Strategic Planning and Development Services	5	3,051		2,642	
Marine Environment and Food Safety Services	6	5,649		5,296	
Fisheries Science Services	7	3,646		3,485	
Aquaculture and Catchment Management Services	8	2,887		2,771	
Ocean Science Services	9	10,611		9,791	
Irish Maritime Development Office	10	1,325		1,263	
Pensions Costs	16	1,876		1,785	
Total Expenditure			41,822		32,827
Surplus / (Deficit) for the year			(4,494)		2,842
Surplus at 1 January			9,322		6,480
Surplus at 31 December			4,828		9,322
Statement of Total Recognised Gains and Losses					
Surplus / (Deficit) for the year			(4,494)		2,842
Experience (Gains) / Losses arising on Pension Scheme Liabilities			49		78
Changes in Assumptions					
Deferred Pension Funding			(49)		(78)
			(4,494)		2,842

The results for the year relate to continuing operations. The Statement of Accounting Policies and Notes 1 – 21 form part of these financial statements.



Kevin Bonner
Chairman



Mary Dooley
Board Member

BALANCE SHEET

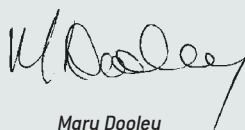
AS AT 31 DECEMBER 2006

		2006		2005	
	Note	€'000	€'000	€'000	€'000
Fixed Assets	12		34,003		32,878
Current Assets					
Debtors & Prepayments	14	4,813		3,462	
Banks and Cash		6,487		9,804	
		11,300		13,266	
Current Liabilities					
Creditors & Accruals	15	6,472		3,944	
Net Current Assets			4,828		9,322
Total Assets Less Current Liabilities before Pension					
Deferred Pension Funding		16,000		13,900	
Pension Liabilities		(16,000)		(13,900)	
Net Assets			38,831		42,200
Financed By					
Capital Account	11	34,003		32,878	
Income and Expenditure Account		4,828		9,322	
Total Reserves			38,831		42,200

The Statement of Accounting Policies and Notes 1 - 21 form part of these financial statements.



Kevin Bonner
Chairman



Mary Dooley
Board Member

CASH FLOW STATEMENT

FOR THE YEAR ENDED 31 DECEMBER 2006

RECONCILIATION OF OPERATING SURPLUS TO NET CASH FLOW FROM OPERATING ACTIVITIES

	Note	2006 €'000	2005 €'000
Surplus / (Deficit) per Income & Expenditure Account		(4,494)	2,842
Interest received		(134)	(19)
Transfer (to) / from Capital Account		1,125	(895)
Depreciation	12	4,005	3,621
Decrease / (Increase) in Debtors & Prepayments		(1,351)	4,372
(Decrease) / Increase in Creditors & Accruals		2,528	772
Net cash inflow from operating activities		1,679	10,693

CASH FLOW STATEMENT

		2006 €'000	2005 €'000
Net cash inflow from operating activities		1,679	10,693
Returns on investments and servicing of finance			
Interest received		134	19
Net capital expenditure			
Acquisition of fixed assets	12	(5,130)	(2,755)
Disposal of Fixed Assets	12	0	29
Increase / (Decrease) in cash		(3,317)	7,986

RECONCILIATION OF NET CASH FLOW TO MOVEMENT IN NET FUNDS

		2006 €'000	2005 €'000
Increase / (Decrease) in cash		(3,317)	7,986
Net funds at 1 January		9,804	1,818
Net funds at 31 December		6,487	9,804

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

1. GENERAL

The Marine Institute was established on 30 October, 1992 in accordance with the provisions of the Marine Institute Act, 1991

“to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the marine environment”.

The Financial Statements cover the Year Ended 31 December 2006

2. GRANT IN AID

	2006		2005	
	€'000	€'000	€'000	€'000
Current Purposes				
Marine Institute	18,960		18,461	
Less Superannuation contributions repayable*	384	18,576	275	18,186
Capital Purposes				
National Seabed Survey	2,263		3,405	
Marine Institute	2,000		838	
Research and Technical Development Infrastructure (RTDI) (Note 13)	5,000	9,263	4,000	8,243
		27,839		26,429

*By agreement with the Department of Communications, Marine and Natural Resources this amount is refundable in respect of employee pension contributions

	2006		2005	
	€'000	€'000	€'000	€'000
3. OTHER INCOME				
EU Contract Research				
Data Directive (see note below)*	1,906		1,816	
Other	1,318		1,153	
		3,224		2,969

Other Income				
Research Vessel Charterage	2,861		1,112	
Databuoy – Department of Finance	557		455	
Change Management Fund	142		817	
Sundry and Other Contract Income	1,779	5,339	1,140	3,524
Total		8,563		6,493

* The Data Directive is a European wide Directive establishing a community framework on the collection and management of data needed to conduct the Common Fisheries Policy.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

4. CORPORATE SERVICES

	2006 €'000	2005 €'000
Wages and Salaries (Note 16)	1,158	1,084
Marine RTDI Fund (2001-2006), National Development Plan (Note 13)	6,276	1,260
Administration	4,568	2,920
Depreciation	775	530
Total	12,777	5,794

Included in the Wages and Salaries in Corporate Services are the employee contributions payable to the Dept of Communications, Marine and Natural Resources in respect of the Marine Institute pension scheme. Administration costs include an audit fee of €19,600 in 2006 (2005 : €19,000)

5. STRATEGIC PLANNING AND DEVELOPMENT SERVICES

	2006 €'000	2005 €'000
Wages and Salaries	1,129	1,051
Research & Development Programmes	1,349	1,080
Depreciation	573	511
Total	3,051	2,642

6. MARINE ENVIRONMENT AND FOOD SAFETY SERVICES

	2006 €'000	2005 €'000
Wages and Salaries : Core staff	2,118	1,925
EU Contract Staff	153	136
	2,271	2,061
Research & Development Programmes	3,166	3,058
Depreciation	212	177
Total	5,649	5,296

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

7. FISHERIES SCIENCE SERVICES

	2006 €'000	2005 €'000
Wages and Salaries: Core Staff	893	904
EU Contract Staff	742	896
	1,635	1,800
Research & Development Programmes	1,791	1,450
Depreciation	220	235
Total	3,646	3,485

8. AQUACULTURE AND CATCHMENT MANAGEMENT SERVICES

	2006 €'000	2005 €'000
Wages and Salaries: Core Staff	1,218	1,150
EU Contract Staff	91	72
	1,309	1,222
Research & Development Programmes	1,379	1,360
Depreciation	199	189
Total	2,887	2,771

9. OCEAN SCIENCE SERVICES

	2006 €'000	2005 €'000
Wages and Salaries	578	531
Administration & Development Programmes	8,028	7,285
Depreciation	2,005	1,975
Total	10,611	9,791

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

10. IRISH MARITIME DEVELOPMENT OFFICE

	2006		2005	
	€'000	€'000	€'000	€'000
Wages and Salaries		300		278
Administration & Development Programmes		1004		981
Depreciation		21		4
Total		1,325		1,263

Summary of Salary Costs At Dec 2006, The Institute employed 202 staff at a cost of €8.592m. (€8.235m in 2005) of which 147 are core staff and the balance of 55 are contract staff.

11. CAPITAL ACCOUNT

	2006		2005	
	€'000	€'000	€'000	€'000
Balance at 1 January		32,878		33,773
Transfer (to) / from Income and Expenditure Account				
Capital Funding	5,130		2,726	
Amortisation in line with Asset Depreciation	(4,005)	1,125	(3,621)	(895)
Balance at 31 December		34,003		32,878

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

12. FIXED ASSETS

Fixed Assets as stated in the financial statements are made up as follows:

	Land & Buildings €'000	Research Vessels €'000	Vessel Equipment €'000	Fixtures & Fittings €'000	Computers €'000	Motor Vehicles €'000	Total €'000
Cost or Valuation							
Balance at 1 January 2006	7,015	29,043	2,226	11,311	5,208	241	55,044
Additions at cost	—	1,000	325	2,678	1,127		5,130
Disposal							
Cost at 31 December 2006	7,015	30,043	2,551	13,989	6,335	241	60,174
Depreciation							
Balance at 1 January 2006	984	5,111	1,998	10,109	3,812	152	22,166
Charge for the year	140	1,201	174	1,302	1,160	28	4,005
Disposal							
Balance at 31 December 2006	1,124	6,312	2,172	11,411	4,972	180	26,171
Net Book Value							
At 31 December 2006	5,891	23,731	379	2,578	1,363	61	34,003
At 31 December 2005	6,031	23,932	228	1,202	1,396	89	32,878

Included in the gross balance of Land and Buildings is an amount of €1.206m which represents the professional valuation of the Fisheries Research Centre in Abbotstown, Dublin at 1 January 1996. Title is vested in the Minister for Agriculture and Food. The Institute remains in occupation of the Abbotstown facility and is in the process of making arrangements for the remaining staff to be accommodated in the Dublin area. It is anticipated that notice to vacate the site will be received from the Department of Agriculture in the course of 2007 or early 2008. As a result the professional valuation at 1 January 1996 has not been revised. The remainder of the assets are stated at cost.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

13. MARINE RTDI FUND (2000-2006), NATIONAL DEVELOPMENT PLAN

The Income and Expenditure in 2006 was as follows:

	2006 €'000	2005 €'000
Direachtas Income (Note 2)	5,000	4,000
Expenditure:		
Projects	5,993	975
Administration	283	284
Total Expenditure (Note 4)	6,276	1,259
Surplus / (Deficit) in year	(1,276)	2,741

The primary objectives of the Marine RTDI Measure are to enhance and consolidate the performance of the marine sector in Ireland through support for R&D and technology transfer activities and provide the RTDI capacity and infrastructure to enable Ireland to fully utilise her marine resource potential in a sustainable manner. Expenditure comprises PhD Scholarships, Post Doctorate Scholarships, Michael Manahan Fellowship, Desk Studies, Applied/Industry Projects, Networking and Technology Transfer projects and Strategic projects. A total of 226 projects have been supported from 2002 to 2006.

The total investment in RTDI projects under the National Development Plan (NDP) between the period 2002-2006 was €15.841m of which the outstanding commitments of €4.155m represent the final payments.

Marine RTDI Projects awarded are subject to contract which specifies that an initial payment will be made on signing of the contract, an interim payment may be made subject to satisfactory performance with final payment made on receipt of and verification of claims. Expenditure is charged in the financial statements in accordance with Accounting Policy 7.

At 31 December 2006 payments were outstanding on amounts charged to the financial statements as follows (note 15).

	2006 €'000	2005 €'000
Amounts Outstanding	497	115

At 31st December 2006 commitments entered into but not yet charged to the financial statements in respect of RTDI projects were €4,155m with the following breakdown.

	€'000
Commitments as at 31 December 2005	8,634
Committed in 2006	1,514
Decommitted	(0)
Paid in 2006	(5,993)
Commitments as at 31 December 2006	4,155

These figures exclude Marine Institute administration of NDP Projects.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

14. DEBTORS AND PREPAYMENTS

	2006	2005
	€'000	€'000
Trade Debtors	1,604	597
Contract Income	1,470	1,629
Prepayments	1,739	1,236
	4,813	3,462

15. CREDITORS AND ACCRUALS

	2006	2005
	€'000	€'000
Trade Creditors	4,131	2,611
Deferred Income	792	527
RTDI Accrual (Note 13)	497	115
Accruals	278	126
Payroll	686	565
Taxation Provision	88	0
	6,472	3,944

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

16. SUPERANNUATION SCHEME AND SPOUSE & CHILDREN’S CONTRIBUTORY PENSION SCHEME

The Marine Institute is a statutory State agency, established under section 3(1) of the Marine Institute Act, 1991 (No. 2 of 1991). Section 9(1) of the Act provides that the Institute shall make schemes for the granting of superannuation benefits to and in respect of staff members, subject to Ministerial approval. Two such approved schemes - the Marine Institute Staff Superannuation Scheme 1998 and the Marine Institute Spouses’ and Children’s Contributory Pension Scheme 1998 and are being operated by the Institute. The former scheme provides retirement benefits (lump sum and pension) to staff members, and death gratuity benefits in respect of death in service. The latter scheme provides pension benefits for the surviving spouses and dependant children of deceased members.

Both schemes are defined benefit superannuation schemes. Superannuation entitlements arising under the schemes are paid out of current income and are charged to the Income and Expenditure Account, in the year in which they become payable. Staff Superannuation contributions are paid over to the Department of Communications, Marine and Natural Resources.

In common with the generality of public service superannuation schemes, no separate fund is maintained, or assets held, to finance the payment of pensions and gratuities.

For the purposes of reporting in accordance with Financial Reporting Standard 17, Retirement Benefits, the Institute has been advised by a qualified actuary. A valuation has been prepared by the actuary in order to assess the liabilities of the superannuation schemes at 31 December 2006.

The major financial assumptions used to calculate liabilities under FRS 17 are as follows:

	2006	2005	2004
Inflation rate increase (a)	2% per annum	2% per annum	2% per annum
Salary rate increase	4% per annum	4% per annum	4% per annum
Pension rate increase	4% per annum	4% per annum	4% per annum
Scheme liabilities discount rate	5.5% per annum	5.5% per annum	5.5% per annum

On the basis of these and other assumptions and applying the projected unit method prescribed in FRS 17, the pension deferred funding asset and the pension liability is as follows:

	2006	2005
Total accrued pension liability	€16.0m	€13.9m

(a) As pension increases under the Marine Institute schemes are based on salary increases rather than on price increases, a price inflation assumption is not necessary for the purposes of this valuation. However, since FRS 17 requires reference to an assumed rate of inflation, the above rate would be appropriate for this purpose.

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

	2006 €'000	2005 €'000
Analysis of the amount charged to operating profit		
Current Service Cost	1,500	1,400
Past Service Cost	—	
Interest on pension scheme liabilities	760	660
Employee Contributions	(384)	(275)
	1,876	1,785
Analysis of the amount recognised in a statement of total recognised gains and losses (STRGL)		
Experience gains and (losses)	(49)	(78)
Changes in assumptions underlying the present value of scheme liabilities	0	0
Actuarial gain and (loss) recognised in STRGL	49	78
Net Deferred Funding for Pensions in the year		
Current Service and Interest Cost	2,260	2,060
Less benefits paid in the year	209	208
	2,051	1,852

The Marine Institute recognises these amounts as an asset corresponding to the unfunded deferred liability for pensions on the basis of the set of assumptions described above and a number of past events. These events include the statutory backing for the superannuation scheme and the policy and practice in relation to funding public service pensions, including contributions from employees and the annual estimates process. The Marine Institute has no evidence that this funding policy will not continue to meet such sums in accordance with current practice. The deferred funding asset for pensions as at 31 December 2006 amounted to €16.0 million (2005: €13.9million). The quantification of the liability is based on the Financial assumptions set out in this note. The assumptions used, which are based on professional actuarial advice, are advised to the Department of Communications, Marine and Natural Resources but are not formally agreed with the Department.

Analysis of movement in liability during the year		
Deficit at the beginning of the year	13,900	11,970
Current Service Cost	1,500	1,400
Interest on Scheme Liabilities	760	660
Actuarial loss recognised in the STRGL	49	78
Benefits paid in the year	(209)	(208)
Deficit at the end of the year	16,000	13,900

NOTES TO FINANCIAL STATEMENTS

YEAR ENDED 31 DECEMBER 2006

17. LEASE COMMITMENTS

Operating Leases

The operating lease relates to the lease of the premises at 80 Harcourt Street, Dublin 2. The lease is for a period of 22 years from 1 September 1993. The annual rent is €244,620. There is a rent review every 5 years, with lease breaks in the 7th and 14th year. There are eleven staff based in Harcourt Street with an ongoing requirement to accommodate additional staff on an occasional basis. The Institute is actively seeking more appropriate accommodation for its Dublin based staff and it intends to vacate Harcourt Street using the breakout clause in Sept 2007.

Finance Leases

There was one finance lease commitment at 31 December 2006.

€'000

Amounts due within 1 year

€7

18. INVESTMENT

The Marine Institute has a 5% shareholding in a company called Wavebob Ltd. This company was established to develop a concept in delivering Wave Energy. The total cost of the investment is €127,000. As it is not possible to accurately assess the value of this investment, the shares are not capitalised in the Balance Sheet.

19. JOINT VENTURE - MARINE TECHNICAL AND DEVELOPMENT SERVICES LTD. (MTDS)

The Marine Institute is a partner in a joint venture company, Marine Technical and Development Services Ltd., which was incorporated in 1998. It holds 51% of the equity capital with the remainder held by Marine Technology Ltd (25%) and another shareholder (24%). MTDS is located in Galway and its primary business is the management, crewing and operation of the research vessels *Celtic Voyager* and *Celtic Explorer*. MTDS ceased to trade on the 5th March 2006 and it is the intention of the Board of MTDS that a voluntarily wind-up of the company will commence in 2007. There will be no impact in the accounts of the Institute as a result of the winding up.

20. REGISTER OF INTERESTS

The Institute has adopted procedures in accordance with the guidelines issued by the Department of Finance in relation to the disclosure of interest by Board members and the Institute has adhered to these procedures. There were no transactions in the year in relation to the Institute's activities in which board members had a beneficial interest.

21. BOARD APPROVAL

The financial statements were approved by the Board on the 26th June 2007.



WWW.MARINE.IE

HEADQUARTERS & LABORATORIES

MARINE INSTITUTE
Rinville
Oranmore
Co. Galway
Tel: +353 91 387 200
Fax: +353 91 387 201
Email: institute.mail@marine.ie

MARINE INSTITUTE
80 Harcourt Street
Dublin 2
Tel: +353 1 4766500
Fax: +353 1 4784988

MARINE INSTITUTE
Furnace
Newport
Co. Mayo
Tel: +353 98 42300
Fax: +353 98 42340